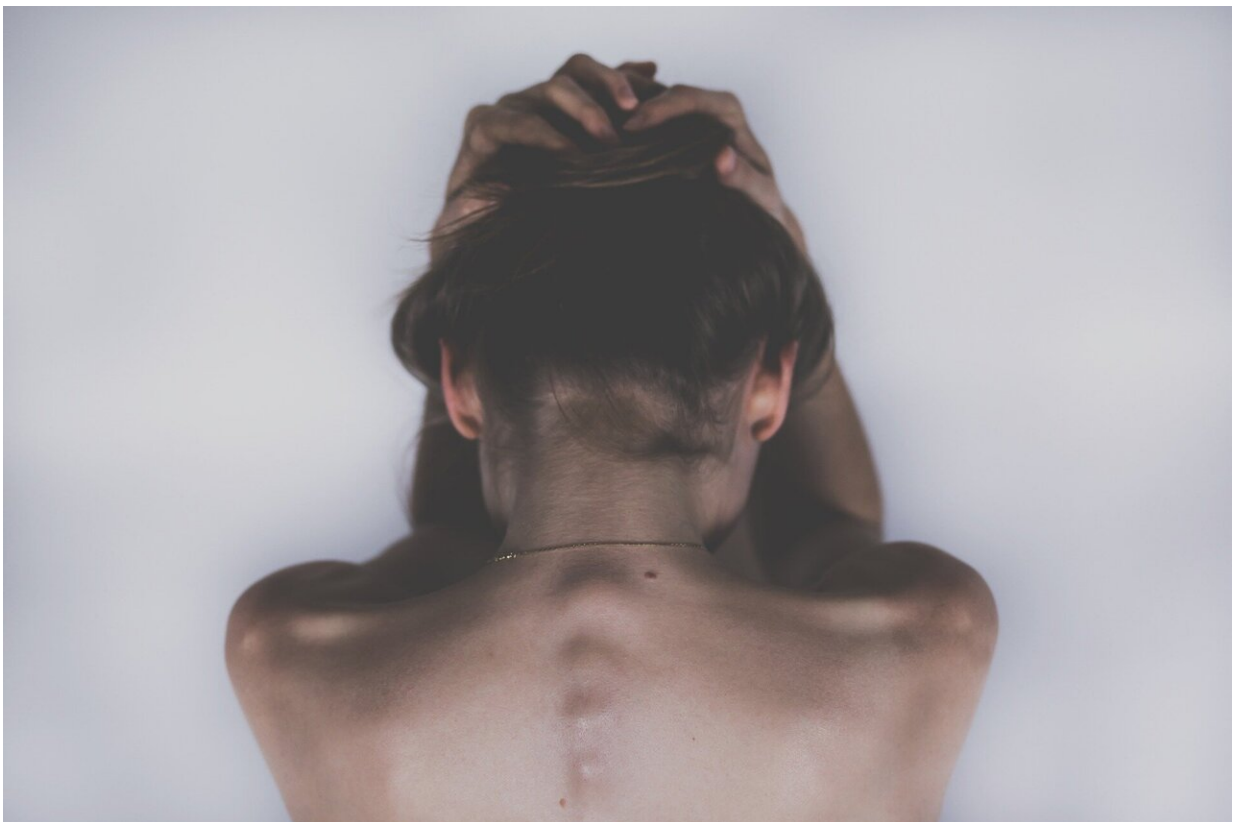


Cognitive behavioral therapy found to ease how fibromyalgia pain is experienced by the brain

September 20 2023



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Patients living with fibromyalgia (FM)—a disease that predominantly affects women and is characterized by chronic pain, fatigue and brain

fog—often find limited treatment options and a scarcity of explanations for their symptoms.

New research led by Mass General Brigham investigators has found that [cognitive behavioral therapy](#) (CBT) can significantly reduce the burden of FM in part by reducing [pain](#)-catastrophizing, a negative cognitive and [emotional response](#) that can intensify pain through feelings of helplessness, rumination and intrusive thoughts. This finding is backed by neuroimaging data, evidencing reduced connectivity between regions of the brain associated with self-awareness, pain and emotional processing.

Results are published in [Arthritis & Rheumatology](#).

"In this study, we looked at the interplay between psychological processes and the brain's connectivity patterns in response to pain," said co-senior author Robert Edwards, Ph.D., a [clinical psychologist](#) in the Department of Anesthesiology, Perioperative & Pain Medicine at Brigham and Women's Hospital. "We wanted to explore how CBT, a talk therapy aimed at combatting maladaptive thoughts, can enhance individuals' daily functioning and alter the brain's processing of pain-related information."

Edwards explains that CBT can reduce negative cognitive and emotional responses to pain. He says that while these responses are normal, they can amplify the disabling effects of chronic pain, and make conditions like FM more burdensome.

The research team for the study included researchers from three Mass General Brigham members: Spaulding Rehabilitation Hospital, Brigham and Women's Hospital and Massachusetts General Hospital.

Researchers recruited 98 women, randomly assigning 64 to a treatment

group receiving CBT and 34 to a [control group](#) that received education about FM and chronic pain but was not taught specific CBT techniques. All participants were between 18 and 75 years old and had a confirmed FM diagnosis for at least six months. To collect baseline data, all participants completed several validated pain and quality of life questionnaires.

Each group participated in eight intervention sessions, consisting of 60–75-minute visits with a licensed mental health provider. Participants were primarily assessed for their levels of pain interference, or a measure of how much their pain disrupted their [daily activities](#), pain catastrophizing, pain severity and the overall impact FM had on patients' quality of life.

Results demonstrated that those who underwent CBT experienced significantly greater reductions in pain interference. CBT participants also exhibited significantly less pain catastrophizing and reported that their FM symptoms had significantly less impact on their daily lives.

The team saw evidence that after undergoing CBT, patients experienced changes in the activities of all three networks that suggested a diminished focus on pain.

"Prior to participants undergoing CBT, we saw that certain parts of the brain linked to [self-awareness](#) and sensation were very connected, suggesting patients were pertinently aware of the pain sensation they were experiencing and internalized these symptoms," said co-first author Jeungchan Lee, Ph.D., an instructor in the Department of Physical Medicine and Rehabilitation based at Spaulding Rehabilitation Hospital and the Athinoula A. Martinos Center for Biomedical Imaging at Massachusetts General Hospital. "After CBT, these connections were significantly less strong, suggesting that patients were better at separating themselves from their pain after therapy."

This study was limited to women, partly because of its high prevalence, and partly to eliminate confounding gender differences in brain activity. In the future, the researchers hope to collect data from men and non-binary patients with FM. Additionally, CBT includes several therapeutic components, and these results cannot be generalized to assess the impact across all forms of CBT on reducing FM chronic pain.

Both Lee and Edwards agree that these findings ultimately suggest that complex [chronic pain](#) conditions like fibromyalgia should be addressed with a multitude of pharmacological and cognitive therapies.

"I hope that these findings motivate health care providers to consider CBT as an effective treatment option to reduce the impact of pain patients experience," explained Edwards. "Chronic pain conditions like fibromyalgia involve long-standing patterns of changes in the central nervous system, and CBT is one among many treatment options, such as medication and physical therapy, that we know can be beneficial for those living with FM."

More information: A Randomized, Controlled Neuroimaging Trial of Cognitive-Behavioral Therapy for Fibromyalgia Pain, *Arthritis & Rheumatology* (2023). [DOI: 10.1002/art.42672](https://doi.org/10.1002/art.42672)

Provided by Mass General Brigham

Citation: Cognitive behavioral therapy found to ease how fibromyalgia pain is experienced by the brain (2023, September 20) retrieved 9 May 2024 from <https://medicalxpress.com/news/2023-09-cognitive-behavioral-therapy-ease-fibromyalgia.html>

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