



The effects of a novel psychological attribution and emotional awareness and expression therapy for chronic musculoskeletal pain: A preliminary, uncontrolled trial



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ABSTRACT

Objective: Current psychological and behavioral therapies for chronic musculoskeletal pain only modestly reduce pain, disability, and distress. These limited effects may be due to the failure of current therapies: a) to help patients learn that their pain is influenced primarily by central nervous system psychological processes; and b) to enhance awareness and expression of emotions related to psychological trauma or conflict.

Methods: We developed and conducted a preliminary, uncontrolled test of a novel psychological attribution and emotional awareness and expression therapy that involves an initial individual consultation followed by 4 group sessions. A series of 72 patients with chronic musculoskeletal pain had the intervention and were assessed at baseline, post-treatment, and 6-month follow-up.

Results: Participation and satisfaction were high and attrition was low. Intent-to-treat analyses found significant improvements in hypothesized change processes: psychological attributions for pain, emotional awareness, emotional approach coping, and alexithymia. Pain, interference, depression, and distress showed large effect size improvements at post-treatment, which were maintained or even enhanced at 6 months. Approximately two-thirds of the patients improved at least 30% in pain and other outcomes, and one-third of the patients improved 70%. Changes in attribution and emotional processes predicted outcomes. Higher baseline depressive symptoms predicted greater improvements, and outcomes were comparable for patients with widespread vs. localized pain.

Conclusion: This novel intervention may lead to greater benefits than available psychological interventions for patients with chronic musculoskeletal pain, but needs controlled testing.

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Introduction

Chronic or persistent musculoskeletal pain is highly prevalent, a major source of morbidity, and a leading contributor to health care expenditures [1]. Many patients have pain that is localized to one or several bodily regions, such as the back, arms, neck, or legs; whereas others have chronic widespread pain (axial and in all four bodily quadrants) and are frequently diagnosed with fibromyalgia, which is estimated to occur in 2–4% of adults [2]. Medical treatments for musculoskeletal pain, such as opiates and other medications, spinal injections, and surgery, have reached staggering rates, but these interventions often have limited efficacy or troubling side effects or risks [3–5].

Psychological and behavioral interventions for chronic pain have been studied over the last several decades. The most popular treatment

program, cognitive behavior therapy (CBT), teaches patients that their pain should be viewed as a chronic condition that will not be cured medically but can be successfully self-managed using a variety of skills including relaxation training, goal setting, activity pacing, environmental changes, attention management, cognitive restructuring, behavioral experiments, and problem solving [6]. CBT has been widely tested in clinical trials, and meta-analytic reviews typically conclude that CBT is efficacious for a range of pain-related outcomes [7–9]. Yet, the actual effect sizes obtained indicate that the benefits of CBT are quite modest. Compared to no treatment (or treatment as usual), the effect of CBT ranges from about 0.25 to 0.50 standard deviations (“small to medium” effects), tend to weaken over time, and only a minority of patients show clinically significant improvement, such as a 30% reduction in pain. More recent approaches for chronic pain, such as mindfulness and acceptance-based interventions [10], have some conceptual overlap with CBT including a focus on accepting the chronic nature of the pain, but emphasize awareness of present experience beyond pain and engaging in value-based activities despite pain. Recent tests of these

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approaches suggest that they also surpass treatment as usual but appear no more beneficial than CBT [11–13].

Several changes in the field's conceptualization and treatment of chronic pain may lead to more powerful outcomes than provided by current approaches. First, current treatment models rarely differentiate among types of chronic pain and advocate the management of pain, regardless of its origin. Although the central nervous system (CNS) plays a role in all chronic pain, peripheral nociceptive afferent processes play the key role in some types of pain, such as that from joint degeneration (e.g., osteoarthritis), autoimmune disease (e.g., rheumatoid arthritis), genetic anomalies (e.g., sickle cell disease), neuropathy, or tumors. Individuals with these types of pain may benefit most from learning to manage, adapt to, or accept their pain. However, the CNS appears to be more important than peripheral nociception in other pain conditions, particularly those considered central sensitization or augmentation syndromes [2], such as fibromyalgia, pelvic pain, abdominal pain, some types of head pain, and some musculoskeletal pain conditions. Psychological stress or trauma, emotion dysregulation, interpersonal conflict, and learning processes such as conditioning, expectations, and attributions appear to play a primary role in predisposing, precipitating, and perpetuating pain. This is hypothesized to occur by creating, activating, and maintaining neural pain pathways [14], and because patients with these types of pain do not have significant peripheral or structural pathology, it may be possible to reduce or eliminate their pain, as opposed to manage it.

A second limitation of CBT and other current pain management approaches is that they do not directly address psychological trauma, victimization, or serious emotional and relational conflict even though such problems are at substantially elevated levels in patients with central sensitization pain conditions [15–21]. We acknowledge that acceptance and mindfulness-based pain management approaches can facilitate the experiencing of negative emotions, which may or may not impact on trauma and conflict, and that pain exposure therapies attempt to reverse behavioral avoidance of pain, which may activate emotional processes. Furthermore, some settings (e.g., the U.S. Veteran's Affairs system) separately treat post-traumatic stress disorder and teach pain management in different clinics. Yet current pain management or acceptance protocols do not directly target trauma and emotional and relational conflict through exposure and processing techniques; rather, techniques such as cognitive reappraisal or defusion, arousal reduction (e.g., relaxation), engaging in pleasant activities, and acceptance of current experience are used to attenuate negative emotions. However, a wealth of research indicates that a lack of awareness and expression of adaptive or primary emotions contribute to the presence and intensity of chronic pain, especially pain associated with central sensitization syndromes, whereas emotional awareness, expression, and processing, which usually involve exposure to avoided emotions and memories, are key mechanisms in reducing symptoms [22–26]. Indeed, focused and directive emotional processing approaches, such as emotion-oriented intensive psychodynamic therapy [22,27] and emotional disclosure (expressive writing) about stress [28], have been found to improve some somatic conditions, including musculoskeletal pain.

The reports of Sarno [29] and others [30] as well as the “explaining pain” model of Moseley and Butler [31] suggest that, at least for central sensitization types of pain, patients may benefit from an explanatory model that emphasizes that their pain is largely under the control of the CNS and learning experiences, and that one can change emotional and relational processes, potentially leading to pain remission or elimination. Thus, we developed and tested a treatment program for such patients with chronic musculoskeletal pain conditions. Our approach emphasizes re-attributing the primary source of pain to neural pathways rather than bodily injury or disease; understanding that pain is a signal of learned, usually emotional processes; recognizing that control over painful symptoms can be achieved through the power of the mind; engaging in emotional awareness and expression exercises; and re-

engaging in a full range of life activities to “unlearn” the pain. The intervention consists of an individual consultation for each patient followed by 4 sessions of group therapy.

We conducted an uncontrolled trial of this novel intervention on a series of patients seeking treatment for central sensitization-based chronic musculoskeletal pain. We hypothesized that the intervention would effectively reduce pain intensity (primary outcome) as well as interference, depression, and distress over 6 months. We also hypothesized that the treatment would change key theoretical processes: increasing patients' psychological attributions of pain, emotional awareness, and emotional approach coping, and decreasing alexithymia; and we hypothesized that improvements in these processes would be associated with improvements in pain-related outcomes. Finally, patients with emotional disturbances such as depression often show less benefit from CBT approaches than patients with less depression [32–34], and reviews indicate that patients with widespread pain or fibromyalgia achieve little or no significant pain reduction from CBT and mindfulness-based approaches [7,35]. Thus, we tested whether this novel therapy would be successful for patients with elevated depression and widespread pain, compared to less depressed patients and those with more localized pain.

Method

Participants

Participants were adults reporting musculoskeletal pain for at least 3 months who consulted an internal medicine physician (HS) at a hospital-based mind-body clinic. Patients were excluded if the physician's interview and history, review of medical records, or physical examination revealed that patients: a) had an autoimmune or other disease or structural pathological process that typically generates pain (e.g., rheumatoid arthritis, inflammatory bowel disease, systemic lupus, sickle cell disease, cancer); b) had serious mental illness or cognitive impairment; c) were suicidal or homicidal; or d) were non-literate in English. Also, patients who had the consultation but did not start the group phase of the treatment (described below) were excluded.

Procedure

The trial was registered with Clinicaltrials.gov (NCT00861302). The study was a research evaluation of a clinical “mind-body” program, and patients were enrolled into the program from November 2008 through March 2011, and follow-up assessments were completed by October 2011. Self- or clinician-referred patients who contacted the clinic were sent routine “pre-consultation” baseline self-report measures of pain intensity, pain interference, and depression to be completed and brought to the consultation (described below). The consulting physician (HS) provided the independent research team with the contact information of each patient who finished the consultation and planned to enroll in the subsequent group phase of the program, and a researcher telephoned patients and requested their participation in an evaluation of the program. Interested patients were met in person at the clinic by a researcher before the group sessions started, provided written informed consent, and completed the “pre-group” baseline assessment, which included additional program evaluation outcome measures of pain and distress as well as process measures of pain attribution, emotional awareness, emotional approach coping, and alexithymia. Patients then participated in the group treatment (described below), after which they completed all measures (post-treatment). Patients then completed only the outcome measures 6 months after treatment. (An additional assessment was conducted 3 months after treatment, but the results for 3 and 6 months were nearly identical, so for simplicity of presentation, we give only the 6-month follow-up data.)

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