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CHRONIC PAIN (R STAUD, SECTION EDITOR)

Emotional Awareness and Expression Therapy for Chronic Pain: Rationale, Principles and Techniques, Evidence, and Critical Review

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Abstract

Purpose of Review Patients with chronic pain, especially primary or centralized pain, have elevated rates of psychosocial trauma and intrapersonal or intrapsychic conflict. To address these risk factors and potentially reduce pain, the authors developed emotional awareness and expression therapy (EAET). This article presents the rationale for EAET, describes its principles and techniques, reviews its development and early testing as well as recent clinical trials, and critically analyzes the evidence base.

Recent Findings Four initial trials (between 2006 and 2011) demonstrated the efficacy of earlier versions of EAET. Four recent randomized, controlled trials of different EAET durations (1 to 8 sessions) and formats (individual or group) in patients with fibromyalgia, irritable bowel syndrome, pelvic pain, or medically unexplained symptoms support the earlier findings. EAET reliably reduces pain and interference, although improvements in anxiety and depression are less reliably achieved and may be delayed. The largest and best conducted trial found superiority of EAET over cognitive-behavioral therapy for fibromyalgia. Patient retention in EAET is high, and adverse events are rare.

Summary EAET merits inclusion as a treatment option for primary pain conditions, and it may be the preferred treatment for some patients. Research is needed on EAET with other pain conditions and samples, using better controls and comparison conditions, and on additional ways to motivate and help patients engage in successful emotional processing.

Keywords Chronic pain · Primary pain · Emotional awareness and expression · Emotional processing · Randomized trial

Introduction: Background and Rationale

Chronic pain conditions are common, costly, and often confusing to both patients and clinicians. Because pain is inherently a biopsychosocial phenomenon [1], the past several decades have seen psychologists and other behavioral researchers and providers make great strides in understanding, evaluating, and treating patients with chronic pain.

One advance in diagnosis is the distinction between secondary and primary pain. Secondary pain is driven largely by pathological somatic processes (e.g., tumors, nerve impingement and other neuropathies, localized inflammation, blood flow anomalies). In contrast, primary pain (i.e., "centralized," "central sensitization," "central augmentation," or "nociplastic" pain) lacks a major somatic driver and is instead largely controlled—amplified or even generated—by the brain and spinal cord. Primary pain includes conditions such as fibromyalgia (FM), irritable bowel syndrome (IBS), chronic pelvic pain, temporomandibular pain, head pain, and many cases of non-specific musculoskeletal pain, such as back and other localized pains.

Careful physical examination, medical history, and psychosocial assessment can help distinguish primary from secondary pain [2••, 3, 4]. It is critical to search for peripheral nociceptive drivers of pain and address them when found. The authors suggest that when no clear peripheral etiology is found, the pain should be assumed to be central, rather than attributed to various non-specific findings such as

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degenerative disc disease. There also are clinical clues that help to "rule in" a central cause: pain that persists after tissue healing, is intermittent, shifts locations, occurs in a distribution that is not neurophysiologic, is triggered by mild stimuli (such as sound, light, foods, weather changes, light touch) or varies with time of day or stressful life events.

Psychological factors such as attention, appraisal, mood, and environmental contingencies influence both secondary and primary pains; however, primary pain appears to be more influenced by psychosocial stress or trauma and interpersonal and intrapsychic conflicts. For example, there is substantial comorbidity between lifetime post-traumatic stress disorder (PTSD) and central sensitization conditions [5]. Other psychosocial stressors and dysfunctional emotional processes are elevated patients with centralized pain conditions [6–14], and experimental research links early adversity with later pain amplification and chronification [15–18].

The most popular psychological interventions for chronic pain are cognitive-behavioral therapy (CBT) [19, 20] and acceptance and mindfulness-based therapies [21, 22]. The former teaches patients to manage their symptoms via skills training, and the latter, to engage in valued life activities while accepting rather than controlling their pain, thoughts, and feelings. These approaches, however, do not directly target the trauma, life adversity, or conflicts that appear to drive primary pain. In contrast, there are many general psychotherapies that focus on trauma and psychological conflict and yield substantial improvements in symptoms [23–27]. A common mechanism of these psychotherapies is that they help patients engage and process stimuli (e.g., memories, experiences, relationships, and emotions) that patients typically avoid by using defenses such as suppression, distraction, intellectualization, and other cognitive and behavioral strategies. Indeed, psychotherapy process studies shows that patients' emotional expression during therapy sessions is one of the strongest predictors of positive treatment outcomes [28•].

Given that psychosocial trauma and conflict predispose to, precipitate, perpetuate, or exacerbate pain, it is important to treat those risk factors. This point was made by Leserman [29], who noted the link between sexual abuse and subsequent gynecologic and gastrointestinal pain. She argued that effective exposure-based treatments for such trauma are available and should be tested on such patients. The authors' program of treatment development and testing has been motivated primarily by the goal of improving patient pain-related outcomes. A secondary goal, however, has been to challenge the concerns of skeptical researchers and clinicians by demonstrating that treatments *can* successfully target trauma in patients with chronic pain, resulting in symptom reduction rather than exacerbation, and that patients will accept rather than reject or be invalidated by emotion-focused treatments.

Thus, the authors developed a treatment approach to psychological trauma or conflict in patients with primary pain, which they labeled emotional awareness and expression therapy (EAET; in some trials, it was called "training" or "interview" rather than "therapy"). This therapy draws from many other psychological techniques or therapies, including as follows: (a) pain neuroscience education or the "explaining pain" model, which identifies the brain as the primary pain organ and posits the reversibility of pain following changes in beliefs [30•, 31]; (b) pain exposure therapy, which encourages patients to engage in pain-eliciting behaviors so that they can unlearn their pain-related fear [32]; (c) exposure-based cognitive-behavioral therapies, which help patients process emotions underlying PTSD and other anxiety disorders [27]; (d) intensive short-term psychodynamic therapy, which challenges patients' defenses to help them experience and express unconscious emotions [24]; (e) experiential therapies, which use techniques such as focusing, empty chair, and two-chair dialog to empathically facilitate patients' awareness and expression of emotions [25]; (f) written emotional disclosure or expressive writing, which appears to have some benefit for centralized pain [33]; (g) assertiveness training, which has a long history of helping patients overcome their fears of expressing their power and strength in relationships [34]; and (h) rescripting therapy, which helps patients imagine and voice new, more powerful or less frightening endings to recurrent nightmares or intrusive memories [35].

Core Principles and Techniques of EAET

EAET has these core principles and techniques:

1) Patients need to learn that their brain—rather than their peripheral tissues—is the organ that generates or amplifies primary pain. Peripheral processes (e.g., muscle tension, autonomic dysregulation, inflammation) may contribute to pain but are largely controlled by the brain. Moreover, the neural pathways regulating pain and these peripheral processes are intimately tied to patients' cognitions and emotions. Discussions with patients about these principles are augmented by personal demonstrations that activate emotions so that patients can more easily recognize their emotion-brain-pain links. Such discussions should be done with compassion so that patients understand that their pain is real and they are not weak or mentally ill and are not to be blamed for having pain.
2) The brain has been strongly shaped by experiences throughout one's life, including painful injuries or procedures; abuse, neglect, or victimization; and interpersonal or intrapsychic conflicts. Stressful experiences can generate or amplify pain, especially when avoidance of uncomfortable experiences (trauma memories, emotional conflicts, interpersonal interactions, and even pain itself) leaves patients feeling helpless and fearful, preventing

both psychological growth and the reduction of pain and other symptoms. It is important, therefore, to help patients recognize, disclose, and process their traumas and conflicts.

3) Therapy helps patients face these avoided emotion-laden situations, become aware of and experience their feelings, and adaptively express them. The two most commonly avoided emotions or drives are the need for agency, power, protection, or independence—which are activated by patients' anger and pride—and the need for relatedness, communion, attachment, or dependence—which are activated by connecting feelings such as sadness, love, and healthy guilt.
4) In therapy, patients are encouraged to recall a conflict person and situation and express their underlying emotions to the imagined/remembered other person, using words, voice tone, facial muscles, and body. Such expression amplifies emotional experience, clarifies motives, and reduces fear of expression. Patients need to express the "right emotion at the right target" rather than secondary emotions at substitute targets. Patients benefit by "rescripting" their story, accessing or creating new, adaptive emotions (e.g., anger, sadness, love) that were not originally expressed.
5) To further reduce both stress and pain, patients are encouraged to identify the needs and feelings that might be expressed in actual relationships. Healthy communication often involves a combination of assertion balanced by connecting feelings, but also may involve setting new boundaries or even distancing oneself from others. Planning for and role playing such interpersonal encounters occur in session, followed by actual attempts in real life.

Early Versions of EAET

The current EAET approach evolved from earlier versions that each author independently developed. Described here are several preliminary variations of EAET and trials that tested them.

Schubiner's early practice was strongly informed by the work of Sarno [36, 37], who stressed that most musculoskeletal pain stems from the mind's blocking of unconscious emotion, particularly rage, rather than from peripheral tissue damage. Schubiner modified Sarno's approach and developed an "affective self-awareness" program. This program consisted of an initial patient evaluation and review of medical records and psychosocial history to rule out structural/disease contributions to pain, followed by patient education about mind-body connections and the role of emotions in causing "neural pathway" pain. Patients subsequently participated in a three- or four-session weekly class, which was guided by the manual, *Unlearn Your Pain* [38]. Sessions included as follows: (a) education (presenting research and case studies) about a psychophysiological model of chronic pain; (b) expressive writing; (c) fear-reduction techniques such as mindfulness exercises and affirmations of self-acceptance and healing; and (d) gradual re-engagement in activities despite pain, during which the emotional and cognitive skills could be applied. Note that directed emotional expression about trauma was not a part of this early practice.

From 2007 to 2008, Schubiner's program was tested in a randomized, controlled trial (RCT) of 45 women with FM (M age = 50.1 years) [39]. Intervention patients received the affective self-awareness program and were compared to waitlist control patients. At 6-month follow-up, treated patients had substantial improvements in pain severity ($d = 1.46$), pain interference, widespread pain, and tender point threshold, whereas there was no change in controls; 45.8% of treatment patients had at least 30% pain reduction from baseline compared with none of the controls. The treatment did not improve mental health, sleep, or fatigue.

From 2008 to 2010, Schubiner's clinical practice was evaluated in an uncontrolled cohort study by tracking 72 patients (79.2% female; M age = 49.3 years) with musculoskeletal pain through treatment and 6-month follow-up [40]. There were large effect size improvements in pain severity, pain interference, and depressive symptoms (effects size d ranging from 0.99 to 1.30) at follow-up. Almost two-thirds of the patients had at least 30% reduction in pain and interference, and fully one-third improved at least 70%.

Meanwhile, Lumley developed an early version of EAET called emotional exposure therapy, which focused on emotional processing of trauma-related avoidance behavior (although with less emphasis on the role of the brain in generating symptoms). From 2006 to 2008, his team tested this therapy in an uncontrolled case series of 10 women (M age = 56 years) who had FM and unresolved psychological trauma [41]. Patients completed 8 to 15 sessions of therapy, and at 3-month follow-up, there were large improvements on FM impact, trauma symptoms, and life satisfaction, and distress (d from 0.70 to 0.79); and small-to-medium benefits on pain and disability. Two patients showed substantial gains, four made moderate gains, two showed modest improvement, and two did not benefit.

Lumley then developed another version of EAET that focused specifically on anger and healthy assertion, rather than the full range of emotions. From 2009 to 2011, his team tested anger awareness and expression training (AAET) in 147 young adults with chronic head pain (87.8% female, M age = 22.1 years), who were randomized to receive three sessions of group-based AAET, group-based relaxation training, or waitlist control. At 4-week follow-up, both interventions (AAET and relaxation training) were superior to controls on headache-related outcomes, with small-to-medium effects (d

from 0.20 to 0.49), and both interventions were similar to each other in their effects. Only relaxation training, however, significantly improved psychological distress [42].

Recent Trials of EAET

Following their early work, the authors collaborated to develop the current version of EAET, which includes a stronger focus on emotional expression of unresolved trauma and conflict by targeting unexpressed anger and connecting emotions. Along with doctoral students and colleagues, they recently tested EAET in four trials, which varied in therapy format and duration, the population treated, and the types of control and comparison conditions included. Their primary goal was to test the efficacy of EAET in different primary pain conditions, but a secondary goal was to determine whether this rather intense, emotion-activating therapy can be conducted in a range of formats and settings. These four trials are presented below in order of increasing treatment duration.

The authors developed a single session version of EAET—a 90-min "life stress EAET interview"—and tested whether it could be successfully conducted in front-line medical clinics. Two separate but parallel trials were conducted, using the same intervention and trial design. Patients were recruited at clinics, randomized in a 2:1 ratio to the EAET interview or a waitlist control condition, and then reassessed at a 6-week follow-up.

One trial was conducted on 75 primary care (family medicine) patients (86.7% female; M age = 39.2 years) who had medically unexplained symptoms—primarily pain-related conditions [43•]. At follow-up, patients who had received the EAET interview had lower pain severity, pain interference, sleep problems, and global psychological symptoms than controls (d from 0.54 to 0.85).

The other trial of the life stress EAET interview was conducted in a specialty women's urology clinic among 62 women (M age = 46.0 years) who had various chronic pelvic pain conditions (e.g., interstitial cystitis, pelvic floor dysfunction, or dyspareunia) [44]. The treatment and control conditions differed at baseline on depression, which was adjusted in analyses. Compared with controls, patients who received the EAET interview had significantly lower pain severity (d = 0.55) and pelvic floor dysfunction (d = 0.74) at 6-week follow-up, but the two conditions did not differ on pain interference, depression, or anxiety.

The authors also developed and tested a three-session version of EAET [45]. The trial had the same design as the earlier trial of anger awareness and expression therapy for chronic head pain [42], except that in this trial, EAET and relaxation training were conducted individually rather than in groups. A sample of 106 adults with IBS (80.2% female, M age = 36.1 years) was recruited from the community and randomized to EAET, relaxation training, or waitlist control. At the 10-week follow-up, compared with controls, only EAET reduced IBS symptoms (d = 0.57), and both EAET and relaxation training improved overall quality of life (d from 0.56 and 0.61). Interestingly, only relaxation training, but not EAET, reduced depressive or anxiety symptoms.

Finally, the team conducted the PAST-FM trial ("Pain and Stress Treatment for Fibromyalgia"): an NIH-funded, two-site, three-arm RCT for patients with FM [46••]. They compared EAET to CBT symptom management and to a basic comparator/active control condition: FM education, which focused on the neuroscience of FM, its medical treatment, and various self-help and empowerment strategies. Importantly, unlike most comparative psychological treatment studies, this trial had equipoise across the three trial arms. All three were equivalent in format, duration, and therapist contact (eight, weekly, 1.5-h small group sessions) and were given comparable labels and rationales. Investigator allegiance was balanced by having separate investigator teams with specific expertise design each of the three arms and recruit, train, and supervise therapists who were skilled in and committed to the treatment they offered. Data analysis and reporting were conducted by a statistician with no treatment allegiance.

A total of 230 patients with FM (93.9% female; M age = 49.1 years) were assessed at baseline and clustered into small treatment groups of 5 to 7 patients, which were randomized to conditions, received the treatment, and assessed at post-treatment and 6-month follow-up. Retention in EAET was high (77.2% of patients attended at least 75% of sessions) and somewhat better than in CBT (64% of patients), and over 90% of trial patients completed the 6-month follow-up. At follow-up, EAET was significantly superior to FM education on most of the outcomes (d from 0.29 to 0.45). Importantly, EAET was numerically superior to CBT on all but one of the 15 outcomes and significantly superior to CBT on reductions in widespread pain (d = 0.37) and the percentage of patients reaching 50% reduction in pain from baseline (22.5% vs. 8.3%). Although CBT was numerically superior to FM education on almost all outcomes, statistical significance was found only for anxiety. This is one of the rare, well-powered trials that shows the superiority of one intervention (EAET) over a bona fide, expertly conducted alternative therapy, CBT.

Critical Analysis of EAET

These trials indicate that EAET is an effective treatment, reducing pain and other somatic symptoms and improving functioning when conducted in both individual and group formats and in durations ranging from one to eight sessions. Efficacy has been demonstrated in various centralized or primary pain conditions, including FM, IBS, pelvic pain, head pain, non-specific musculoskeletal pain, and

medically unexplained symptoms. Low attrition rates (and clinical observations) suggest that most patients in these trials have been open to such an emotion-focused approach, and adverse events have been very rare. Therefore, EAET should be considered an evidence-based treatment option for patients with primary pain, and perhaps the preferred treatment for some patients.

Note that the version of EAET tested in the recent trials was designed to be theoretically "pure", that is, fully distinct from cognitive-behavioral and acceptance-based treatments against which it could be compared. Thus, EAET excluded techniques such as engaging in pain-eliciting activities or exercise to challenge patients' pain-related fears and mindfulness exercises to accept one's feelings and distinguish them from somatic sensations. The inclusion of such techniques in the clinical application of EAET is likely to yield even stronger benefits.

Despite these strengths, there are many limitations of the available evidence and unanswered questions about EAET. Generalizability of the studies is limited in several ways. Trial samples were either exclusively female [39, 41, 44] or largely female [40, 42, 43•, 45, 46••]. Although this imbalance partially reflects the gender distribution of the conditions studied, how EAET works for men remains largely uninvestigated. Given known gender differs in trauma prevalence and emotional expression, trials need to enroll more men, examine EAET effects for genders separately, and test EAET in conditions that are prevalent in men (e.g., chronic back pain) and samples such as military veterans. In addition, many of the trials had samples that were relatively highly educated or were composed of motivated community volunteers; one should determine EAET's efficacy—and patients' interest in and acceptance of this approach—on a broader range of unselected patients from clinical practices. Furthermore, EAET has been targeted to patients with primary or centralized pain conditions, so its effects on the broader range of pain conditions are not known. Also unclear is whether EAET is optimal only for patients with clear trauma histories or is also applicable to the larger group of patients with various interpersonal or intrapsychic conflicts that do not qualify as trauma. Finally, the trials of EAET have been conducted by a small number of investigators who developed it; therefore, except for the large PAST-FM trial, which controlled for investigator allegiance, experimenter bias could play a role in the trials. It is vital that other researchers test EAET.

The largest, best controlled, and best conducted trial demonstrated superiority of EAET to a basic comparator/active control condition (FM education) as well as superiority on several pain outcomes to expertly delivered CBT [46••]. These findings suggest that EAET has specificity; it is effective not only beyond non-specific factors (e.g., group support, therapist contact, patient engagement) but also beyond a bona fide alternative therapy. The two trials that compared EAET (or AAET) with relaxation training, however, found equivalence of treatments—showing neither superiority nor specificity, although the smaller sample sizes limited statistical power to detect differences between EAET and another treatment [42, 45]. Moreover, for most of the trials, the beneficial effects of EAET were found only in comparison with no additional treatment (i.e., waitlist control) [39, 43•, 44] or in uncontrolled cohort trials [40, 41]. Although demonstrating efficacy compared with no additional treatment is the most common evidence supporting psychological interventions for chronic pain, trials that compare EAET with better controls and comparison treatments are needed.

The effects of EAET on reducing pain severity are robust across trials. But only half of the eight trials reviewed above found that EAET improved psychological symptoms such as depression and anxiety [40, 41, 43•, 46••], whereas the other four trials did not. Because EAET targets the activation of negative emotions, EAET may leave patients more aware of and experiencing their emotional distress, perhaps instead of experiencing their distress as pain. Note, however, that two of the three EAET trials with the longest follow-ups—6 months—showed reductions in psychological symptoms [40, 46••] whereas trials with shorter follow-ups usually did not [42, 44, 45]. This suggests that improvements in depression or anxiety may simply take longer to occur than reductions in pain, and longer-term follow-ups should routinely be included.

It is not clear which components of EAET lead to the positive outcomes. Some evidence from ongoing process analyses (not reviewed here) suggests that a shift in patients' beliefs about pain's origin (the brain rather than body) and the possibility of reversing pain are powerful correlates of better outcomes. It is noteworthy that the intense emotional expression component, which was added to the recent trials, appears to be clinically powerful, but its necessity remains uncertain. The earlier trials of affective self-awareness did not include intense emotional expression, and they showed quite good outcomes. There likely are substantial individual differences among patients—some patients may need relatively intense expression, whereas others may benefit from less intense versions of emotional expression or disclosure or even have good outcomes with emotional awareness and internal experiencing techniques without any external expression at all. Future research should explore such patient differences and how they interact with variations in the treatment protocol. Because some patients are likely to address emotional or traumatic issues for their pain, future research might also examine ways to prepare and motivate patients for such a treatment. Finally, because emotion-focused treatments can

be unsettling or frightening to some patients, the inclusion of emotional regulation skills training might help more patients successfully engage in emotional processing, as suggested by a recent clinical trial [47].

Conclusions

Intervention developers often seek to have their approach listed as "effective" on treatment guidelines. This means that their treatment is a distinct therapy, with its own name (and often, a unique acronym), treatment manual, and usually training workshops. On the one hand, the current authors have followed this model, developing and naming a therapy (EAET), freely disseminating the treatment manuals and patient materials, and offering training workshops. But this approach to intervention development has limitations, especially with the proliferation of psychological treatments for pain—many of which differ more in emphasis or jargon than in substance. Although EAET can be viewed as a separate treatment, the authors recommend that researchers and clinicians focus on the key principles of change and the techniques that accomplish them, and apply the principles and techniques based on assessments of what is needed for particular patients, with certain types of pain problems, in specific contexts. Five such core principles are listed above, and the authors strongly encourage communicating to patients the brain's control over their pain and pain changeability and the importance of approaching and processing emotionally difficult experiences. These goals can be accomplished with a range of techniques.

The authors also encourage innovation and testing improvements to EAET and other therapies for pain. For example, the authors have recently placed EAET into a larger integrative assessment and treatment model [2••]. They have proposed that clinicians focus first on pain neuroscience education and cognitive-behavioral and mindfulness techniques to shift patients' beliefs about pain etiology and reversibility and to reduce their fear of pain and activity. Implementing EAET techniques to target broader emotional issues and background trauma or conflict is recommended for those patients who do not respond to the initial approach and for patients who have a prominent presentation of unresolved trauma or conflict. As noted in this review of available clinical trials, there is consistent evidence that EAET leads to reductions in pain and improvements in functioning, so such an approach is evidence-based. But researchers and clinicians are encouraged to test these proposals and develop new principles and techniques to achieve the greatest patient improvements in the most efficient ways possible.

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- • Of importance
- •• Of major importance

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2.•• Lumley MA, Schubiner H. Psychological therapy for centralized pain: an integrative assessment and treatment model. Psychosom Med. 2019;81:114–24. https://doi.org/10.1097/psy.0000000000000654 **This article describes limitations of current pain approaches, reviews and alternative therapies and presents a novel model of assessment and intervention.**
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