Critical Review

Fifteen Years of Explaining Pain: The Past, Present, and Future

G. Lorimer Moseley*,† and David S. Butler*,†

*Sansom Institute for Health Research, University of South Australia, Adelaide, Australia.
†Neuroscience Research Australia, Sydney, Australia.

Abstract: The pain field has been advocating for some time for the importance of teaching people how to live well with pain. Perhaps some, and maybe even for many, we might again consider the possibility that we can help people live well without pain. Explaining Pain (EP) refers to a range of educational interventions that aim to change one's understanding of the biological processes that are thought to underpin pain as a mechanism to reduce pain itself. It draws on educational psychology, in particular conceptual change strategies, to help patients understand current thought in pain biology. The core objective of the EP approach to treatment is to shift one's conceptualization of pain from that of a marker of tissue damage or disease to that of a marker of the perceived need to protect body tissue. Here, we describe the historical context and beginnings of EP, suggesting that it is a pragmatic application of the biopsychosocial model of pain, but differentiating it from cognitive behavioral therapy and educational components of early multidisciplinary pain management programs. We attempt to address common misconceptions of EP that have emerged over the last 15 years, highlighting that EP is not behavioral or cognitive advice, nor does it deny the potential contribution of peripheral nociceptive signals to pain. We contend that EP is grounded in strong theoretical frameworks, that its targeted effects are biologically plausible, and that available behavioral evidence is supportive. We update available meta-analyses with results of a systematic review of recent contributions to the field and propose future directions by which we might enhance the effects of EP as part of multimodal pain rehabilitation.

Perspective: EP is a range of educational interventions. EP is grounded in conceptual change and instructional design theory. It increases knowledge of pain-related biology, decreases catastrophizing, and imparts short-term reductions in pain and disability. It presents the biological information that justifies a biopsychosocial approach to rehabilitation.

© 2015 by the American Pain Society

Key words: Pain education, cognitive intervention, chronic pain, therapeutic neuroscience education, pain biology education.

Historical Context and Beginnings

That pain is a biopsychosocial phenomenon is widely regarded as sacrosanct in academic discussions and research articles, and Loeser’s adaptation of Engel’s biopsychosocial model is rightly considered a landmark contribution to the pain field. The dominant application of the biopsychosocial model has been, and to a large extent remains, focused on the impact of pain on sufferers and those around them. The importance of psychosocial factors as mediators of suffering has been well recognized, and several effective treatments have been devised to modulate those factors. Since the seminal contributions of Fordyce, for example, who applied operant conditioning models to assist people in pain to return to behaviors that were consistent with being well, rather than behaviors that were consistent with suffering, psychological therapies have been at the core of many pain management programs. Modern therapies combine behavioral principles...
with cognitive therapies to generate a range of therapeutic approaches collectively termed cognitive-behavioral therapy (CBT).

This wide range of CBT interventions share a reasonably common set of theoretical assumptions about the interactions among environmental events, cognitions, and behaviors, including the proposition that symptoms and dysfunctional behaviors are often cognitively mediated and can therefore be improved by modifying problematic thinking and inaccurate beliefs. That pain itself is modulated by beliefs appears fundamental to the idea that pain is a biopsychosocial phenomenon. The proposition follows that pain is in part cognitively mediated and can therefore be improved by modifying inaccurate beliefs. This CBT-driven work led the way in advocating for the importance of teaching people how to live well with pain. However, somewhere between the establishment of the biopsychosocial model and the rapid rise of CBTs as the dominant nonpharmacological treatments for chronic pain, a shift occurred toward a modus operandus more consistent with “pain is unavoidable–suffering is optional.” That is, CBT aimed to manage pain, rather than to treat it. Of course, many well-trained and effective CBT practitioners almost certainly provide credible explanations that include aspects of Explaining Pain (EP). However, the cursory coverage of this material in the CBT literature suggests that the educational component of CBT, considered critical for the subsequent implementation of techniques aimed at changing beliefs and behaviors, focused on pain’s being unavoidable and therefore on the need to learn how to cope with it: “It is important to remember that because the pain is chronic the [pain management program’s] approach will not cure or relieve the pain...” Exactly when or why this shift occurred is not clear; “pain can be modified by our beliefs and behaviors” is inconsistent with “pain cannot be relieved by modifying beliefs and behaviors.” Moreover, it is inconsistent with what we now know about the underlying biological mechanisms of pain: that pain is fundamentally dependent on meaning (see Butler et al for review). An understanding of pain that was foreshadowed in the gate control theory, articulated more fully 2 decades ago but only now gaining significant traction, is that it reflects an implicit evaluation of danger to body tissue and the need for protective behavior. This view clearly presents pain as being distinct from nociception, yet upregulation within the nociceptive system (central sensitization) may underpin the idea that pain relief is not a viable target of intervention. Such a perspective is central to the proposal that chronic pain is a disease of the brain (an “immutable neural disruption” model of pain), which has gained popular attention but contrasts with fundamental concepts of pain’s being something one feels and the inconsistent link between brain changes and clinical presentation.

We contend that the absence of strong biological justification for CBT has contributed to its being no more effective for decreasing pain and disability in people with chronic pain than other active treatments (although, importantly, CBT programs on the whole do relieve pain25). A recent Cochrane overview of multidisciplinary pain management programs also suggests that the long-term effects of CBT for chronic pain are underwhelming.9 To some, this suggestion might be unsurprising; we are probably not alone in questioning why someone in pain would engage with treatment aimed at their thoughts, beliefs, and behaviors if they believe that their pain is an accurate marker of tissue damage or of another disease process afflicting their spinal cord and brain. Patients capture this apparent nonsense eloquently: “I understand that hurt doesn’t always equal harm, but my pain really hurts,” or “This program is really excellent for those who think they have pain, but it is not for me—I have real pain.” Such comments provided the impetus for EP: an educational intervention aimed at reconceptualizing pain itself. Perhaps for some, and maybe even for many, it is time to extend the idea of helping people live well with pain to the possibility that we can help people live well without pain.

**What EP Is and What It Is Not**

EP refers to a range of educational interventions that aim to change someone’s understanding of what pain actually is, what function it serves, and what biological processes are thought to underpin it. It refers to both a theoretical framework from which to approach pain treatment and also the approach itself. EP is not a specific set of procedures or techniques. It takes its key tenets from educational psychology, in particular conceptual change strategies, health psychology, and pain-related neuroimmune sciences. The core objective of the EP approach to treatment is to shift one’s conceptualization of pain from that of a marker of tissue damage or disease to that of a marker of the perceived need to protect body tissue. This new conceptualization is a pragmatic application of the biopsychosocial model to pain itself rather than to pain-related disability per se.

An explicit grounding in conceptual change theory is one way in which EP is clearly differentiated from previous educational components of pain programs and CBTs. Conceptual change learning is specifically shaped around challenging existing knowledge and knowledge structures, rather than simply learning new information, and refining learning strategies that engage new and potentially challenging concepts. The conceptual change field was borne from increasing evidence of difficulties that students have in understanding counterintuitive concepts in science phenomena (such as diffusion) that rely on collective or emergent behavior of constituents, as distinct from linear behavior of constituents. EP clearly presents pain as an emergent rather than a linear process that is counterintuitive to both the dominant structural pathology model and the more recent model of pain as an immutable neural dysfunction.

EP emphasizes that any credible evidence of danger to body tissue can increase pain and any credible evidence of safety to body tissue can decrease pain. Key learning