

The Role of Psychosocial Processes in the Development and Maintenance of Chronic Pain



Robert R. Edwards,^{*} Robert H. Dworkin,[†] Mark D. Sullivan,[‡] Dennis C. Turk,[§] and Ajay D. Wasan[¶]

^{*}Department of Anesthesiology, Brigham & Women's Hospital and Harvard University, Boston, Massachusetts.

[†]Departments of Anesthesiology and Neurology, University of Rochester School of Medicine and Dentistry, Rochester, New York.

[‡]Departments of Psychiatry and Behavioral Sciences and [§]Anesthesiology & Pain Medicine, University of Washington, Seattle, Washington.

[¶]Department of Anesthesiology, University of Pittsburgh, Pittsburgh, Pennsylvania.

Abstract: The recently proposed Analgesic, Anesthetic, and Addiction Clinical Trial Translations, Innovations, Opportunities, and Networks (ACTTION)-American Pain Society (APS) Pain Taxonomy (AAPT) provides an evidence-based, multidimensional, chronic pain classification system. Psychosocial factors play a crucial role within several dimensions of the taxonomy. In this article, we discuss the evaluation of psychosocial factors that influence the diagnosis and trajectory of chronic pain disorders. We review studies in individuals with a variety of persistent pain conditions, and describe evidence that psychosocial variables play key roles in conferring risk for the development of pain, in shaping long-term pain-related adjustment, and in modulating pain treatment outcomes. We consider "general" psychosocial variables such as negative affect, childhood trauma, and social support, as well as "pain-specific" psychosocial variables that include pain-related catastrophizing, self-efficacy for managing pain, and pain-related coping. Collectively, the complexity and profound variability in chronic pain highlights the need to better understand the multidimensional array of interacting forces that determine the trajectory of chronic pain conditions.

Perspective: The AAPT is an evidence-based chronic pain classification system in which psychosocial concepts and processes are essential in understanding the development of chronic pain and its effects. In this article we review psychosocial processes that influence the onset, exacerbation, and maintenance of chronic pain disorders.

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Address reprint requests to Robert R. Edwards, PhD, Brigham & Women's Hospital, Pain Management Center, 850 Boylston St, Chestnut Hill, MA 02467. E-mail: RREdwards@partners.org
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Persistent pain is a significant therapeutic challenge and a public health epidemic placing burdens on those experiencing pain as well as society more broadly. A survey of 10 developed and 7 developing countries suggests that the point prevalence of chronic pain among adults is 41% and 37%, respectively,²²⁶ figures which encompass a wide array of diverse conditions. In the United States, chronic pain is estimated to affect over 100 million adults at any given time, is among the leading causes of reduced quality of life, and carries direct and indirect costs of over \$600 billion dollars annually in the United States alone.⁷² Moreover, the experience of persistent pain starts early; as many as 38% of children and adolescents in community samples report the presence of chronic pain.¹²¹ Despite the widely recognized effect of chronic pain on global health,

however, pain science continues to lack a precise, evidence-based taxonomy of chronic pain conditions, which would facilitate improvements in diagnosis and treatment.⁶⁵

The Analgesic, Anesthetic, and Addiction Clinical Trial Translations Innovations Opportunities and Networks (ACTTION) public-private partnership with the U.S. Food and Drug Administration, and the American Pain Society have joined together to develop an evidence-based chronic pain classification system termed the ACTTION-American Pain Society Pain Taxonomy (AAPT). As noted in the initial description of the taxonomy, pain management stands to benefit substantially from the development of an empirically-based classification system that can serve to illuminate individual differences in the pain experience, inform policy, clarify prognosis, and guide treatment decisions.⁶⁵ The structuring of the AAPT was on the basis of a consensus decision that the dimension along which pain disorders would be categorized is organ system/anatomical structure, which includes: peripheral and central neuropathic pain, musculoskeletal pain, pelvic/urogenital, visceral pain, and disease-related pains not classified elsewhere (eg, pain associated with active cancer, sickle cell disease, and Parkinson disease). Some of the most important characteristics of the taxonomy are that 1) it be on the basis of the best available evidence rather than solely on consensus or expert opinion, 2) the diagnostic criteria for specific chronic pain disorders should be determined using existing mechanistic and diagnostic evidence, rather than historical precedent or theoretical biases, 3) it reflects the multidimensional and biopsychosocial nature of chronic pain, and 4) it emphasizes the inclusion of existing information regarding mechanistic features and risk factors for pain conditions, including not only neurobiological but also psychosocial processes.⁶⁵

In addition to establishing core diagnostic criteria for numerous chronic pain conditions (dimension 1), the AAPT provides dimensions on which to categorize common features and comorbidities of the conditions (dimensions 2 and 3), as well as detailing the consequences (dimension 4), and contributory mechanisms (dimension 5) of persistent pain disorders. A number of these identified features, consequences, and mechanisms are psychosocial in nature. Indeed, processes such as mood, affect (negative and positive), coping, and social support are included in the taxonomy as specific examples of risk factors, protective factors, or comorbidities that affect the experience of chronic pain and its presentation.⁶⁵ The purpose of this article is to highlight the contributory role of psychosocial factors (eg, their function as risk factors, protective factors, or moderators) in the context of the AAPT classification system. The present review is one of a series of foundational supporting articles intended to highlight and describe crucial areas that are common to many or all of the conditions within the AAPT taxonomy. The process of psychosocial assessment (eg, conceptualization of

psychosocial domains, evaluation and selection of assessment instruments) is addressed in a complementary supporting article in this Supplement to *The Journal of Pain*²³⁰; to avoid redundancy, in this article we focus specifically on the understanding of the role of psychosocial processes in shaping the development and trajectory of pain conditions. It is also important to note that although the AAPT taxonomy is in many ways a typical category-based diagnostic taxonomy, most of the psychosocial processes described in this article, which have important roles in shaping the development and trajectory of chronic pain conditions, are best considered as continuous, dimensional variables rather than as categorical designations.

One additional important consideration: although the AAPT describes “psychosocial mechanisms” as part of dimension 5, we have endeavored to limit the use of the term “mechanism” because of some well-known limitations of the existing literature.^{18,103,112,125} In particular, for a process to function as a causal mechanism, it must be fully distinct from its effect and must clearly precede that effect in time. The literature in this area, although rich in suggestive associations between psychosocial constructs and pain-related outcomes, is impeded by substantial conceptual and theoretical overlap of constructs, as well as overlap in the methods by which they are measured (ie, usually by self-report on numerically scaled questionnaires), and from a relative dearth of clear prospective studies. That is, many of the findings that identify putative psychosocial mechanisms are on the basis of respondent recall of past events or states, or on mediational analysis of cross-sectional data, the limitations of which we elaborate in the Evaluating Psychosocial Contributions to Chronic Pain Outcomes section.

The Biopsychosocial Model of Pain

Before the 1960s, most people viewed chronic pain conditions as primarily medical issues with clear pathophysiological bases that required physical treatments such as surgery or medication.¹⁰³ Subsequently, a biopsychosocial understanding has come to dominate the professional scientific community's characterization of chronic pain. Collectively, the biopsychosocial approach describes pain and disability as a multidimensional, dynamic interaction among physiological, psychological, and social factors that reciprocally influence each other, resulting in chronic and complex pain syndromes.^{73,103} The overlap between affective disturbance and chronic pain has been widely recognized for many decades.^{74,231} Pain is defined as a sensory and an affective experience, and reviews of pain assessment invariably emphasize that pain unpleasantness, or affective responses to pain, should be assessed along with pain intensity and other “sensory” features.⁶⁵ Reviews of the biopsychosocial model of pain cite its substantial history, including Engel's call for a new “medical model,”⁶⁴ Fordyce's seminal work on the contribution

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