# Psychiatry in Chronic Pain: A Review and Update

*John Sharp, MD, FAPA, FAPM* and Brian Keefe, MD*

**Address**
*Department of Psychiatry, Beth Israel Deaconess Medical Center
1101 Beacon Street Brookline, MA 02446, USA.
E-mail: john_sharp@hms.harvard.edu

**Current Psychiatry Reports** 2005, **7:**213–219
Current Science Inc. ISSN 1523-3812


As the field of pain management nears the halfway point of the Congressionally declared "Decade of Pain Control and Research," the prevalence of chronic pain and disability related thereto continue to escalate. In the context of rising costs and suffering associated with persistent pain worldwide, the chronic pain research community has increasingly recognized and investigated the role of the cognitive and affective dimensions of pain. In this paper, the authors review psychologic aspects of pain, psychopathology in chronic pain syndromes, suicidality in this population, and the use of psychotropic medications for treatment in these patients. Where possible, the authors have outlined limitations of previous research in these areas, and have highlighted and described recent studies that have addressed these perceived shortcomings. The role of the psychiatrist in the treatment of patients with chronic pain is reviewed.

## Introduction

"If anyone feels astonished at this associative connection between physical pain and psychical affect, on the ground of its being of such a multiple and artificial character, I should reply that this feeling is as little justified as astonishment at the fact that it is the rich people who own the most money" [1].

An estimated 86 million Americans are affected by some form of chronic pain [2]. The American Pain Society estimates that chronic pain costs the United States $100 billion a year in combined lost work productivity, lost income, and direct medical expenses. Lost productive time from common painful conditions was approximated at $61.2 billion per year, 76.6% of which was explained by reduced work performance [3]. Lower back pain, the most prevalent of all chronic pain problems, has been estimated to affect 54% to 84% of the general population at some point during the course of life [4]. A 2003 survey done by Peter D. Hart and Associates found that seven of 10 Americans think that pain should be considered one of the "top few" or "high" priorities of the medical community [5]. Almost six in 10 adults in the same survey said they would be willing to pay $1 more per week in federal taxes to increase funding for the research into the causes and treatment of pain.

The "Decade of Pain Control and Research," began January 1, 2001 when President Clinton signed congressional bill H.R. 3244 into law. As only the second Congressionally declared medical decade (the first was the Decade of the Brain in the 1990s), this era of increased awareness has engendered numerous reviews on how pain has been conceptualized in the past [6] and suggested future directions [7] for the theoretical foundation and treatment of chronic pain. The subject of psychologic aspects and psychiatric approaches to treatment of chronic pain is vast. The aim of this article is to provide an update on a select sample of the most current research clinically relevant to general psychiatrists.

## Psychology of Pain

The notion that chronic pain can be characterized as much a psychiatric symptom as purely physical manifestation is not a new or recent concept. Engel [8] theorized that, although pain may originate from an acute external insult, it can develop into an independent entity with primary psychologic phenomenology. In his classic and oft-cited article describing the "pain-prone patient," Engel delineated characteristics of people he hypothesized were predisposed to the development of chronic pain, including significant guilt, unsatisfied unconscious aggressive impulses, a history of defeat, and a propensity to develop pain after a real or imagined loss. Based on the concepts of conversion and psychosomatic reactions from the psychodynamic ideology that predominated at the time, this model gained significant acceptance. However, more recent work has not found evidence to support a psychodynamically oriented theory underlying chronic pain [9].

The close association of chronic pain and depressed mood has been noted throughout the medical literature since the 19th century. Greisinger maintained that physical pain and mental pain were physiologically equivalent, differing only in that physical pain was anatomically localizable [6]. Neuroanatomist and Freud mentor Theodor Meynert purported that mental pain and physical pain

were neurophysiologically identical, prompting Scottish psychiatrist Clouston to coin "psychalgia" as the term for severe depression.

## Pain and Depression

The connection between chronic pain and depression has spawned more research interest than any other area of the literature involving psychopathology and chronic pain [10]. In their review of epidemiologic studies of depression in the primary care and general populations, Von Korff and Simon [11] offered the following inferences from their data on pain and depression: 1) pain and negative emotions are related to a trait of heightened awareness of physical symptoms that varies with levels of psychologic distress (somatosensory amplification), a trait not limited to patients with pain; 2) the extent to which pain interferes with daily life (not pain intensity) and the total number of pain sites are the characteristics that most strongly predict the development of depression; 3) somatic symptoms such as anergia and sleep disturbance are far more common depressive symptoms in patients with pain than social isolation or guilt; and 4) disability and psychologic distress typically are evident early in the course of a pain condition, yet an identifiable cohort improves markedly 2 months after pain onset attributable to factors yet to be elucidated.

Prevalence rates for depression in patients with chronic pain vary widely, from 30% to 54% in studies using standardized diagnostic systems and 10% to 100% in those using self-report [12]. Diagnosing depression in the chronic pain population can be a tricky task because the two syndromes share many common features. Fatigue, sleep disturbances, and deficits in memory and attention are characteristics of both disorders. The overlap in symptomatology may lead to falsely elevated rates of depression reported in pain clinics. *The Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition* (DSM-IV) [13] suggests that somatic symptoms should be part of a diagnosis of depression unless "they are clearly and fully accounted for by a general medical condition." In patients with chronic pain, medical comorbidity, and concomitant somatic complaints, even psychiatrists who work regularly with chronic pain patients would have difficulty with attribution of causation.

Cassem [14] argued that the risks associated with potential false positives generated using traditional criteria are outweighed by the risks of missing a diagnosis of depression attributable to the use of more stringent criteria targeted at diagnosis in the medically ill. The therapeutic utility of antidepressants in nondepressed patients with chronic pain, coupled with the relatively benign side effect profile of newer agents, seem to make their use favorable. However, Endicott [15] has forwarded another method that, although not widely used, has found its way into the clinical practice guidelines for depression in primary care. This diagnostic construct involves criteria that are parallel to those listed in the DSM-IV, but somatic symptoms are replaced with nonsomatic substitutes.

This issue of commonality of somatic symptoms was addressed in a recent study by Wilson *et al*. [16], who used three different methods for diagnosing depression in a sample of 129 outpatients with chronic musculoskeletal pain referred to a pain clinic in Ottawa, Canada. The authors referred to these three diagnostic schemes as the inclusive method (standard DSM-IV criteria), the etiologic method (excluding symptoms from the diagnosis that could be attributed to pain), and the substitutive method (where traditional somatic symptoms of depression potentially attributable to pain were substituted for cognitive and behavioral symptoms commonly associated with depression). Analysis of the data showed that the prevalence of depression was greatest when investigators used the inclusive method (35.7%). The substitutive method yielded a depression diagnosis in 30.3% of patients, and the lowest prevalence (19.4%) was tallied with use of etiologic method. The researchers found that when patients were asked to describe their perception regarding the cause of their somatic symptoms, they most often ascribed them specifically to physiologic pain. If these particular symptoms then were excluded from being used to diagnose depression, 45% of patients who met the inclusive criteria for the disorder no longer did using the etiologic method. However, the same group scored similarly to the group diagnosed with depression using the Beck Depression Inventory, suggesting that the depression diagnosis was appropriate and not a false positive in this group of patients. With respect to why patients tended to attribute symptoms to pain rather than depression, the authors speculated that some pain patients tend to generalize most of their medical problems to being rooted in pain, and others may find it more comfortable acknowledging a somatic rather than psychologic source for their symptoms. These empiric findings, in the context of the known propensity of pain patients to attribute symptoms to somatic pain, caution clinicians against attempting to assign causality when diagnosing depression in patients with chronic pain.

## Further Comorbidity

Most studies in the area of psychiatric comorbidity with chronic pain have involved highly restricted sample populations, such as patients in tertiary care pain clinics and specialized inpatient pain units. The use of such samples, which generally include patients who perceive the most severe pain intensity or experience the greatest pain-related disability, introduces the potential of selection bias. Such bias can result in the over-representation of psychiatric illness or psychologic distress in study results. Another limitation with most of the studies examining psychopathology and pain involves the use of continuous self-report measures to establish psychopathology. The use of

such measures (usually questionnaires of varying degrees of validity) presents an increased likelihood that scores suggesting higher degrees of psychopathology may represent state-dependent distress or transient psychiatric symptoms rather than a persistent mental disorder [17•].

McWilliams *et al*. [18] recently published a study of disease-related pain and psychiatric comorbidity that addresses the limitations of past research regarding selection bias and self-report questionnaires. The authors mined the database from the National Comorbidity Survey [19], a broad-based study of the prevalence of psychiatric disorders in the general United States population that used a structured interview based on criteria in the revised third edition of the Diagnostic and Statistical Manual of Mental Disorders. Subjects with arthritis represented the focus of the study because of the salience of chronic pain to this condition. All subjects from this group reported pain duration of at least 1 year. This "chronic pain" group was compared with a group from the general population not significantly different from a demographic perspective.

Consistent with the predominance of depression research in the chronic pain literature, depression was the most prevalent single psychiatric disorder in the pain group. With multiple regression analysis, chronic pain remained significantly associated with depression, posttraumatic stress disorder, panic disorder, and agoraphobia as compared with the general population. In addition to extending earlier research findings of increased depression in chronic pain patients to applicability in the general population, this study draws new attention to the association of anxiety disorders to chronic pain. The association between posttraumatic stress disorder and panic disorder to chronic pain was stronger than the association between pain and depression. Furthermore, the prevalence of anxiety disorders was higher than that of total mood disorders in the chronic pain population sampled. When using the structured diagnostic interview, the presence of one psychiatric disorder in the chronic pain sample was not associated with an increased level of disability.

## Suicide

Suicidal intent is a common issue for patients with mental disorders who present to psychiatrists. The prevalence of suicide and suicidal ideation in mental illness is well-documented and beyond the scope of this article. However, fewer than 4% of all suicides are committed by people with a terminal illness, with most patients in such a context wishing to remain alive as long as possible [20]. However, pain relief is among the most frequent reasons for terminally ill people to request physician-assisted suicide. Meier *et al*. [21] recently published results from a national survey of more than 3000 physicians working in specialties deemed to have the highest likelihood of receiving requests for assisted suicide. Analysis of the data showed that of the patients who requested medically hastened death, severe pain and severe physical discomfort were significantly associated with that request being honored by the surveyed physician.

Fishbain [22] reviewed 18 separate studies that examined suicidality in chronic pain. He concluded that risk factors related specifically to pain (severity, duration) and increased comorbidity of risk factors not exclusive to pain (mood disorders) combined to result in higher rates of suicidal behavior in patients with chronic pain. Some research suggests a positive association between suicidal ideation and pain severity [23], whereas other research finds that the association can be explained by the presence of depression in these patients [24]. To reconcile the inconsistencies in previous studies regarding measurements of pain characteristics and suicidal behavior, Smith *et al*. [25] recently reported a study in which they reviewed the charts 153 patients with nonmalignant pain who were referred to a multidisciplinary pain clinic in a tertiary care hospital. All of the patients in the sample who presented to this clinic completed the following assessments: a McGill Pain Questionnaire (assessing patients' perceptions of sensory, cognitive and affective dimensions of pain), a Beck Depression Inventory, a Structured Clinical Interview for Suicide History in Chronic Pain (an instrument developed by one of the authors that measures current suicidality, past suicidality, and family history of suicidality), and coding of the type, duration, and etiology of the presenting pain complaint.

Logistic regression of the data collected yielded numerous interesting findings. The authors found a robust association between family history of suicidality and current suicidal ideation on the part of the study participants (OR=12 for active suicidal ideation; OR=14 for passive suicidal ideation). Approximately 50% of subjects with suicidal ideation had a positive family history of suicide. The abdomen was the pain location most strongly associated with suicidal ideation, with a four- and fivefold adjusted increased risk of active and passive suicidal ideation, respectively. Neuropathic pain was found to be statistically protective against suicidality. The authors hypothesized that neuropathic pain most commonly exists as a consequence of identifiable disease, citing literature supporting the notion that patients who ascribe their pain to mysterious causes are more likely to catastrophize and perceive a diminished sense of control over their pain. Lastly, the study found no significant association between suicidal ideation and pain duration, pain severity or depression. This finding is consistent with the study from Fisher *et al*. [24], who found that physical pain was not an independent predictor of suicidal thinking. In their study, no patient without clinically significant depressive symptoms reported suicidal thinking.

## Advances in the Psychopharmacology of Pain

Chronic pain differs from acute pain in several significant ways, requiring clinicians to use different approaches for treatment. Acute pain usually is described as an adaptive, protective response to tissue injury, mediated by nociceptive pathways. Nociceptive pain generally is caused by inflammation or injury of somatic tissue, and is described by patients as sharp or stabbing in nature. Under usual conditions, such pain can be resolved by the body's physiologic response from the endogenous pain-modulating system. Chronic pain may be nociceptive or neuropathic, and usually is viewed as a maladaptive response. Additionally, most common nonmalignant chronic pain syndromes are divided into categories of neuropathic and nonneuropathic ("functional"). In persistent pain, endogenous pain modulation mechanisms do not result in return to baseline; instead, the neural pathways used in transmitting acute pain undergo changes. Chronic pain states are characterized by heightened pain sensitivity and lowered pain threshold. As such, patients with persistent pain experience pain from stimuli not normally painful (allodynia) and are hyperresponsive to normal painful stimuli (hyperalgesia). These neural characteristics have been attributed to plastic changes in the central nervous system, a process known as central sensitization [26•].

Similar to other syndromes in psychiatry, a detailed pathophysiologic mechanism for chronic pain has not been delineated. Numerous developments in the field of psychotropic drugs in chronic pain have been serendipitous: psychotropic medications initially were used in pain medicine solely to treat coexiting psychiatric disorders [27]. The first report of potential analgesic properties in nonopioid psychotropic drugs was published in 1960, when researchers noted improvement in cancer-related pain with the use of tricyclic antidepressants (TCAs) [28]. In conjunction with the growing acknowledgement and empiric documentation of the high prevalence of mood disorders in the chronic pain population, this finding commenced the practice of using TCAs in chronic pain that has persisted to this day.

## Antidepressants

Antidepressants are the most common class of psychotropic medications used in the treatment patients with chronic pain. In patients with depression, antidepressants have been shown to produce pain relief in chronic neuropathic pain more quickly and at lower dosages than are commonly used for the treatment of depression [29]. Patients with chronic pain without depression have experienced significant pain reduction with TCAs, suggesting an independent analgesic effect for these medications [30]. The mechanism behind the analgesic effect of antidepressants is thought to involve their enhancing influence on the activity of norepinephrine (NE) and serotonin (5-HT) in the descending pain modulation pathways of the spinal cord, projections that inhibit ascending pain signals. Within the spinal cord, NE and 5-HT are thought to inhibit the release of pro-nociceptive neurotransmitters such as glutamate and substance P. Furthermore, certain antidepressants such as imipramine, clomipramine, fluoxetine, and nefazodone have been postulated to augment opiate effects within the central nervous system [31].

Tricyclic antidepressants represent the class of antidepressants most extensively studied in chronic pain populations. Multiple meta-analyses have confirmed the efficacy of TCAs in chronic nonmalignant pain [32•]. TCAs with the broadest range of neurotransmitter activity seem to be more efficacious than those with a narrower mechanism of action. Amitriptyline and imipramine (both showing reuptake inhibition in NE and 5-HT) had greater analgesic efficacy in diabetic neuropathy than desipramine (primarily noradrenergic) [33]. Although isolated studies using SSRIs in small sample sizes with nonneuropathic chronic pain syndromes have shown some positive analgesic effect (particularly with paroxetine, which has been noted to have some NE reuptake inhibition at doses of 60 mg per day), studies in which SSRIs were compared directly with TCAs resulted in TCAs showing greater efficacy in every case [34].

The shown efficacy of so-called dual-action antidepressants recently has engendered increased interest in the use of venlafaxine in patients with pain. Venlafaxine shares many chemical and mechanistic similarities with the TCAs, without the same degree of troublesome side effects and relative contraindications of TCAs. Furthermore, venlafaxine shares a structural likeness with tramadol, an analgesic that is a known opioid agonist and monoamine stimulator [34]. A recent randomized controlled trial comparing venlafaxine with imipramine in painful polyneuropathy showed similar efficacy between the two medications [35]. Duloxetine is the most recent dual-action antidepressant to come to market, and it has gained approval from the United States Food and Drug Administration for the treatment of painful diabetic neuropathy, where it has shown analgesic efficacy in nondepressed patients. In addition, a double-blind, placebo-controlled, multicenter trial using duloxetine in patients with fibromyalgia was published recently [36]. In this study, 207 outpatients meeting American College of Rheumatology criteria for primary fibromyalgia were assessed using, among other instruments, a Brief Pain Inventory (BPI) and tender point pain threshold. Data analysis showed that duloxetine-treated subjects experienced significantly greater improvement in mean tender point pain threshold and the BPI average pain severity score and BPI average interference from pain score. The subjects who received duloxetine showed improvement in fibromyalgia symptoms and pain severity regardless of their baseline depression status, with the improvement of pain in females (but not males, the small minority of subjects) proving independent of the effect of the drug on mood and anxiety.

## Antipsychotics

Although antipsychotics never gained widespread use for analgesia, numerous case reports from the 1970s suggested that typical neuroleptics may have a role as adjuvants in the treatment of chronic pain. These reports included claims for the effectiveness of pimozide in postherpetic neuralgia, chlorpromazine in phantom limb pain, and haloperidol in postoperative pain. However, the most recent review of typical neuroleptics in the treatment of pain concluded that evidence from controlled trials do not support their use as analgesics [37]. Fishbain *et al.* [38] have recently collected all 10 of the published reports and studies that pertain to the treatment of pain with atypical antipsychotics, critically evaluating them from an evidence-based perspective. The pain conditions ranged from headache and cancer pain to chronic lower back pain and fibromyalgia. All but one of the studies found analgesic effects from the atypical antipsychotics used. However, the strongest data supported a drug not available in the United States, and the largest sample studied in this group of reports was 50 subjects. Therefore, there is insufficient evidence at this time to make an evidence-based recommendation favoring the use of antipsychotics for analgesia in chronic pain states.

Nonetheless, a recent psychophysiologic study provides theoretical support for the long-held clinical view that antipsychotics (particularly typical antipsychotics) may have analgesic properties. In this study, 19 healthy male volunteers were enrolled in a dopamine D2 receptor positron emission tomography study to determine the association between dopamine D2 receptor binding potential and the response to experimental pain [39]. The results indicate an inverse correlation between cold pain threshold and/or cold pain tolerance and D2-binding potential in the striatum. With less D2 receptor binding potential in the striatum and forebrain, there is more potential for central modulation of pain. Therefore, the authors propose that a person with relatively few available D2 receptors in the forebrain would likely have a higher tonic level of pain suppression. Based on this preclinical finding, it follows that typical neuroleptics, which have higher D2 receptor affinities, should have greater analgesic effects than atypicals.

## Discussion

As psychiatry contributes to our understanding and treatment of painful physical conditions, so too does somatic pain contribute to the challenge of treating many psychiatric disorders. Commonly, psychiatrists need to examine patients in pain and interpret the influence of physical suffering in patients with all types of psychiatric diagnoses. The influence of pain is especially prevalent in depression, anxiety, personality disorders, substance abuse, and posttraumatic stress disorder.

Psychiatric disorders may present as chronic somatic pain [40•]. Somatization as a mechanism has long been understood as a manifestation of emotional suffering [8]. Failure to appreciate the potential relevance of this defense leads to missed opportunities in treatment [41]. Conversely, there is an associated concern that a psychologic understanding—emotional explanation of a painful condition—may lead to a dismissal of the real physical suffering involved. Psychiatrists must balance attention to the soma as completely as possible while answering their charge to modify the psyche in an effort to alleviate the overall pain experience.

A useful strategy to evaluate physical pain in emotional terms treats some pain as "abnormal illness affirming behavior" [42]. Pain deemed out of proportion to the expected level of suffering, as governed by the biomedical disease state, may be considered to convey the significant contribution of psychologic distress to the experience of pain. A determination must be made as to the patient's level of awareness regarding the psychologic amplification of the distress experienced. Diagnoses such as malingering, factitious illness and somatoform pain disorder can be entertained based on the presence of conscious or unconscious awareness of symptom production and underlying motivation.

As this review has shown, the link between pain and psychopathology has been clearly established. Patients in pain (as compared with the general population) are more likely to suffer emotionally. Of all the vulnerabilities this correlation embraces, depression, anxiety, personality disorders [43,44], substance abuse, and posttraumatic stress disorders are most prevalent. Antecedents predisposing toward all these conditions include childhood maltreatment, injury, and abuse [45,46]. The comorbidities often involved complicated care of each separate element of a patient's condition. Unmasking previously undetected diagnoses allows the psychiatrist to recommend more specific and more comprehensive care. The challenge for the psychiatrist is to determine which aspects of a patient's suffering may be approached from a psychiatric perspective.

The evaluation and management of treatment resistance [47] is especially useful for the psychiatrist in assisting others involved with the multidisciplinary care of the patient with pain. Although there is no algorithm to follow, a systematic approach to detect the presence or absence of common psychiatric disorders is clearly warranted. As much as we use the biopsychosocial model to identify and link aspects of mental illness to appropriate intervention, the psychiatrist working with patients in chronic pain must endeavor to be clear and specific regarding treatment interventions for each aspect of the pain experience.

Recently, medication management of major depression by psychiatrists has evolved to include greater use of dual-acting antidepressants, a standard practice in the in treatment of chronic pain for more than three decades. This review has described many recent studies that provide additional empiric support for the superiority of antidepressants acting on multiple transmitter systems over more selective agents. Typical and atypical antipsychotics

may also have analgesic properties, but the field awaits more conclusive data before their regular use in pain patients can be recommended.

The multiple layers interwoven between pain and psychiatry may be shown in the case of Bethany, a 39-year-old woman recently separated from her husband. She initially presented to her primary care physician with weakness and incapacitating back spasm. Initial psychiatric evaluation revealed a woman with lifelong feelings of isolation worsened by her recent pain. Her parents "supported each other" and "did not understand" her, leading to longstanding feelings of inadequacy. Bethany struggles with chronic migraine headaches and reported a considerable increase in her alcohol consumption since her separation. Characteristically distant from others despite having numerous superficial relationships and defended against her sense of neediness, she remains focused on her somatic pain and seeks relief through medical care.

This case shows the numerous points of view necessary for the physician to care for Bethany successfully. An evaluation to rule-out depression and substance overuse or abuse is a prerequisite because this comorbid condition interferes with otherwise effective treatment of her physical and emotional condition. Her cognitive symptoms of damaged self-esteem and ego-dystonic isolation, in the context of functional somatic pain, would make this patient a candidate for a dual-acting antidepressant. Next, an active health partnership (the doctor-patient relationship) is required to support specific treatment recommendations emerging from a careful medical work-up. Emotional support (likely involving interpersonal and cognitive psychotherapy) and recommendations regarding her day-to-day routine and the utilization of available assistance from others, then would round out the necessary elements of treatment. Psychodynamically, her psychiatrist must be prepared to help her negotiate the threat of caring and real understanding by anticipating her resistance to the developing transference: pathologic caution, apparent but false intimacy, and potential acting-out. The goal is reduced pain and increased acceptance of herself as a whole and secure person.

## Conclusions

Patients with chronic pain require careful multidisciplinary treatment, in which psychiatry can play an important role. From a psychiatrist's perspective, the care of the patient with chronic pain involves systematic illumination of potential contributions to the patient's current experience. A history to determine antecedent maltreatment or abuse, considerations for abnormal illness affirming behaviors (childhood illness, childhood abuse, current reactions of her support structure to pain), concurrent psychiatric illness, and the complicating role of medication and substance overuse and/or abuse all must be conceptualized and specifically excluded or accounted for and addressed in the treatment planning process. Only then are psychiatrists able to optimally carry out necessary aspects of care. Psychiatrists then can support other members of the treatment team, including providing an outlet to the rest of the team in an effort to guard against the potential interference of frustrations they inevitably share in dealing with complicated pain patients.

Recently, there is a movement to consider including specific training recommendations for psychiatrists to include skills in dealing with patients in chronic pain [48]. This trend is in accord with the Accreditation Council for Graduate Medical Education development of a curriculum for multidisciplinary pain management. Psychiatry residencies already provide didactic instruction in neuroanatomy and neuropathology, common pain disorders, psychiatric comorbidity, and treatment using psychotherapeutic and psychopharmacologic approaches. Developing additional competencies specific to chronic pain patients would be valuable. To understand the patient with chronic pain is a matter of considerable special expertise and, arguably, a reflection of considerable competence in the provision of careful, systematic, thorough, and well-rounded psychiatric care.

## References and Recommended Reading

Papers of particular interest, published recently, have been highlighted as:

- • Of importance
- •• Of major importance


1. Breuer J, Freud S: **Studies on hysteria [1895].** In *The Standard Edition of the Complete Psychological Works of Sigmund Freud.* Edited by Strachey J. London: Hogarth; 1955:156.
2. Moskovitz MA: **Advances in understanding chronic pain: mechanisms of pain modulation and relationship to treatment.** *Neurology* 2002, **59:**S1.
3. Stewart WF, Ricci JA, Chee E, *et al.*: **Lost productive time and cost due to common pain conditions in the US workforce.** *J Am Med Assoc* 2003, **290:**2443–2454.
4. Sharp TJ, Harvey AG: **Chronic pain and posttraumatic stress disorder: mutual maintenance?** *Clin Psychol Rev* 2001, 857–877.
5. American Pain Foundation: **Pain Facts.** http://www.painfoundation.org/page.asp?file=Media/painsurveys.htm&menu=1
6. Hodgkiss A: **Rediscovering the psychopathology of chronic pain.** *J Psychosom Res* 1997, **3:**221–224.
7. Keefe FJ, Lumley MA, Buffington AL, *et al.*: **Changing face of pain: evolution of pain research in psychosomatic medicine.** *Psychosom Med* 2002, **64:**921–938.
8. Engel GL: **"Psychogenic" pain and the pain-prone patient.** *Am J Med* 1959, **26:**899–918.
9. Turk DC, Flor H: **Etiological theories and treatment for chronic back pain, II: psychological models and interventions.** *Pain* 1984, **19:**209–233.
10. Campbell LC, Clauw DJ, Keefe FJ: **Persistent pain and depression: a biopsychosocial perspective.** *Biol Psychiatry* 2003, **54:**399–409.
11. Von Korff M, Simon G: **The relationship between pain and depression.** *Br J Psychiatry Suppl* 1996, **30:**101–108.
12. Banks S, Kerns R: **Explaining high rates of depression in chronic pain: A diathesis-stress framework.** *Psychol Bull* 1996, **119:**95–110.

13. American Psychiatric Association: *Diagnostic and Statistical Manual of Mental Disorders (Text Revision), Fourth Edition*. Washington, DC: American Psychiatric Association, 2000.
14. Cassem EH: **Depression and anxiety secondary to medical illness.** *Psychiatr Clin North Am* 1990, **13:**597–612.
15. Endicott J: **Measurement of depression in patients with cancer.** *Cancer* 1984, **53:**2243–2248.
16. Wilson KG, Mikail SF, D'Eon JL, *et al.*: **Alternative diagnostic criteria for major depressive disorder in patients with chronic pain.** *Pain* 2001, **91:**227–234.
17.• Dersh J, Polatin PB, Gatchel RJ: **Chronic pain and psychopathology: research findings and theoretical considerations.** *Psychosom Med* 2002, **64:**773–786.

The authors have written a thorough review of the literature on the relationship between various forms of psychopathology with chronic pain syndromes, including an excellent overview of the "chicken-and-egg" debate about the relationship of depression and chronic pain.

18. McWilliams LA, Cox BJ, Enns MW: **Mood and anxiety disorders associated with chronic pain: an examination in a nationally representative sample.** *Pain* 2003:127–133.
19. Kessler RC, McGonagle KA, Zhao S, *et al.*: **Lifetime and 12-month prevalence of DSM-III-R psychiatric disorders in the United States: results from the National Comorbidity Survey.** *Arch Gen Psychiatry* 1994, **51:**8–19.
20. Hendin H: **Suicide, assisted suicide, and mental illness.** *J Clin Psychiatry* 1999, **60:**46–50.
21. Meier DE, Emmons CA, Litke A, *et al.*: **Characteristics of patients requesting and receiving physician-assisted death.** *Arch Intern Med* 2003, **163:**1537–1542.
22. Fishbain DA: **The association of chronic pain and suicide.** *Semin Clin Neuropsychiatry* 1999, **4:**221–227.
23. Smith MT, Perlis ML, Haythornwaite JA: **Suicidal ideation in outpatients with chronic musculoskeletal pain: an exploratory study of the role of sleep onset insomnia and pain intensity.** *Clin J Pain* 2004, **20:**111–118.
24. Fisher BJ, Haythornthwaite JA, Heinberg LJ, *et al.*: **Suicidal intent in patients with chronic pain.** *Pain* 2001, **89:**199–206.
25. Smith MT, Edwards RR, Robinson RC, *et al.*: **Suicidal ideation, plans and attempts in chronic pain patients: factors associated with increased risk.** *Pain* 2004, **111:**201–208.
26.• Scholz J, Woolf CJ: **Can we conquer pain?** *Nat Neurosi* 2002, **5(Suppl):**1062–1067.

Two neural plasticity researchers present a richly illustrated and easy to understand primer on the cellular mechanisms of pain.

27. Polantin PB, Dersh J: **Psychotropic medication in chronic spinal disorders.** *Spine J* 2004, **4:**436–450.
28. Gatchel RJ: **Psychological disorders and chronic pain: cause and effect relationships.** In *Psychological Approaches to Pain Management: A Practitioner's Handbook*. Edited by Gatchel RJ, Turk DC. New York: Guilford Publications; 1996:33–52.
29. Max MB, Culnane M, Schafer SC, *et al.*: **Amitryptiline relieves diabetic neuropathy pain in patients with normal or depressed mood.** *Neurology* 1987, **37:**589–596.
30. Feinmann C: **Pain relief by antidepressants: possible modes of action.** *Pain* 1985, **23:**1–8.
31. Leo RJ, Barkin RL: **Antidepressant use in chronic pain management: is there evidence of a role for duloxetine? Prim Care Companion.** *J Clin Psychiatry* 2003, **5:**118–123.
32.• Maizels M, McCarberg B: **Antidepressants and antiepileptic drugs for chronic non-cancer pain.** *Am Fam Physician* 2005, **71:**483–490.

The two authors present the most current overview of the data supporting the use of antidepressants and anticonvulsants in patients with chronic pain, including comprehensive tables that delineate useful individualized practice guidelines for various types of pain.

33. Max MB, Lunch SA, Muir J, *et al.*: **Effects of desipramine, amitryptiline and fluoxetine on pain in diabetic neuropathy.** *N Engl J Med* 1992, **326:**1250–1256.
34. Lynch ME: **Antidepressants as analgesics: a review of randomized controlled studies.** *J Psychiatr Neurosci* 2001, **26:**30–36.
35. Sindrup SH, Bach FW, Madsen MD, *et al.*: **Venlafaxine versus imipramine in painful polyneuropathy: a randomized controlled trial.** *Neurology* 2003, **60:**1284–1289.
36. Arnold LM, Lu Y, Crofford LJ, *et al.*: **A double-blind multicenter trial comparing duloxetine with placebo in the treatment of fibromyalgia patients with or without major depressive disorder.** *Arthritis Rheum* 2004, **50:**2974–2984.
37. Patt RB, Proper G, Reddy S: **The neuroleptics as adjuvant analgesics.** *J Pain Symptom Manag* 1994, **9:**446–453.
38. Fishbain DA, Cutler RB, Lewis J, *et al.*: **Do the second-generation "atypical neuroleptics" have analgesic properties? A structured evidence-based review.** *Pain Med* 2004, **5:**359–365.
39. Hagelberg N, Martikainen IK, Mansikka H, *et al.*: **Dopamine D2 receptor binding in the human brain is associated with the response to painful stimulation and pain modulatory capacity.** *Pain* 2002, **99:**273–279.
40.• Pridmore S, Oberoi G, Harris N: **Psychiatry has much to offer for chronic pain.** *Aust N Z J Psychiatry* 2001, **35:**145–149.

Pridmore *et al*. lay out an eloquent argument for the inclusion of psychiatrists in the multidisciplinary care of chronic pain patients. In support of their conclusion that psychiatry has much to offer chronic pain management, the authors provide a review of evidence supporting the emotional aspects of pain, co-occurring psychiatric disorders and the presence of "difficulty to treat" personality structures among patients with pain.

41. Olfson M: **Depressed patients who do and do not receive psychiatric consultation in general hospitals.** *Gen Hosp Psychiatry* 1991, **13:**39–44.
42. Eisendrath SJ: **Psychiatric aspects of chronic pain.** *Neurology* 1995, **45(Suppl 9):** S26–34.
43. Fishbain D: **Approaches to treatment decisions for psychiatric comorbidity in the management of the chronic pain patient.** *Med Clin North Am* 1999, **83:**737–759.
44. Weisberg JN: **Personality and personality disorders in chronic pain.** *Cur Rev Pain* 2000, **4:**60–70.
45. Arnow BA: **Relationships between childhood maltreatment, adult health and psychiatric outcomes, and medical utilization.** *J Clin Psychiatry* 2004, **65(Suppl 12):**10–15.
46. Walling MK, O'Hara MW, Reiter RC, *et al.*: **Abuse history and chronic pain in women: A multivariate analysis of abuse and psychological morbidity.** *Obstet Gynecol* 1994, **84:**200–206.
47. Gruber AJ, Hudson JI, Pope HJ Jr: **The management of treatment-resistant depression in disorders on the interface of psychiatry and medicine. Fibromyalgia, chronic fatigue syndrome, migraine, irritable bowel syndrome, atypical facial pain, and premenstrual dysphoric disorder.** *Psychiatr Clin North Am* 1996, **19:**351–369.
48. Leo RJ, Pristach CA, Streltzer J: **Incorporating pain management training into the psychiatry residency curriculum.** *Acad Psychiatry* 2003, **27:**1–11.