Historical Context: Psychological Mislabling and the Emergence of the Biopsychosocial Model

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Since the end of the last century, we have viewed chronic pain through the assumptions of the biopsychosocial model. George Engel, an academic psychiatrist, championed this model in an article in *Science* in 1977 (Engel, 1977). Engel challenged psychiatry and medicine to move beyond the myopia of biological reductionism. Not without its critics (e.g., McLaren, 1998), Engel's model still stands – bruised but unbowed. In the clinic and the classroom, it continues to provide useful scaffolding for the multiple determinants of human illness. The same cannot be said of the psychogenic model.

Grounded in 19th century psychoanalysis, this model understood headache, fibromyalgia, and many other pain disorders as psychological problems in disguise (Weiss & English, 1943). Only in recent decades has the psychogenic model begun to relax its grip on medicine. To this day, however, although pain specialists recognize that stress and emotional factors can affect but do not cause chronic pain, psychological misconceptions persist. For example, the migraine personality (as well as the arthritic personality, the respiratory personality, and the like) no longer attracts research interest, but the suggestion that perfectionism plays more of a role in migraine than in other medical disorders still makes an occasional appearance (Meckling, Becker, Rose, & Dalby, 2001). Such suggestions are a vestige of the psychogenic era. They are undermined by the poor track record of the psychogenic model across medicine and by data on psychiatric comorbidity in chronic pain. In one large-scale community study (N >100,000), for example, 78% of fibromyalgia sufferers (N >1600) did not report significant levels of depression (Fuller-Thomson, Nimigon-Young, & Brennenstuhl, 2012). The overemphasis on psychological causation may also be attributable, in part, to the effectiveness of cognitive-behavioral therapy.
(CBT), a psychologically oriented therapy for chronic pain. CBT, however, is not a traditional psychological treatment, certainly not in the sense of psychoanalysis and other insight oriented therapies. CBT for pain is more often thought of as a psychobehavioral or psychoeducational treatment. Moreover, while CBT practitioners acknowledge that anxiety, depression or stress may affect certain patients, they do not presume a psychological etiology for chronic pain. In fact, for many pain patients, CBT focuses on behavior – muscle relaxation, medication misuse, suboptimal activity levels – rather than psychology.

In this chapter, I trace the origin and demise of the psychogenic model and its replacement by the biopsychosocial model. I focus on a clinically oriented variant of the biopsychosocial model, the biopsychobehavioral, because this model highlights the three systems that are most frequently targeted in chronic pain therapy. I contrast psychoanalytic and psychobehavioral case studies in order to underline the distinction between psychogenically based treatment and contemporary pain management training. And I discuss the risk of psychological mislabeling that is inherent in an overtly psychological medical model.

**Origin of the Psychogenic Model**

The misdiagnosis of chronic pain is hardly the first example of psychological mislabeling in medicine (Pikoff, 2010). At the middle of the last century, a leading psychosomatic text described more than two dozen fully or largely "psychogenic" conditions, including migraine, asthma, peptic ulcer, arthritis, hypertension, colitis, thyroid disorders, diabetes, menstrual problems, and tuberculosis (Weiss & English, 1943). Antecedents of this kind of psychological thinking in medicine can be found in ancient times (Schneck, 1977). Hippocrates and Galen
pondered the effects of phobias and mood on the body. Fifth century Jerusalem laid claim to a hospital devoted to mental disorders. But it was Freud who produced the first comprehensive analysis of the link between emotion and physical illness (Breuer & Freud, 1957). Through his seminal writings of the 1890s and a visit to this country for the Clark University lectures of 1909, Freud propelled psychoanalysis on to the intellectual landscape of America. Extending the work of Janet and Charcot, he mapped a kaleidoscopic mental landscape of half-hidden conflicts, desires and anxieties. Freud's system attracted the attention of physicians from the start because it was built on the physical complaints of people in emotional distress. And the concept of psychogenesis gained a foothold in American medicine it was to maintain for almost a century.

Freud's first major publication, *Studies on Hysteria* (1893-1895), became scripture for the emerging field of psychosomatic medicine (Breuer & Freud, 1957). The book is especially significant because in five richly drawn case reports, including Breuer's well-known study of Anna O., Freud fleshed out his ideas about conversion, the linchpin of psychosomatic theory. Freud described a kind of psychological gatekeeper at the center of the conversion process. The job of this gatekeeper was to deny conscious expression to thoughts associated with highly negative emotional experiences. Freud believed such thoughts, which often involved taboo sexual activities that could be real or imagined, remained split off from consciousness. Because they did not enter awareness, these "incompatible ideas" could not undergo the normal "wearing away" process that occurred with new experiences. Sometimes, however, under constant pressure for expression, highly charged thoughts would break into consciousness in the guise of physical symptoms. This was conversion. And over the next 100 years, the assumption that psychological phenomena can metamorphose into physical signs and symptoms – Freud's
"mysterious leap" (Breuer & Freud, 1957, p. 5) – burrowed deep into medicine and popular thought.

In *Studies on Hysteria*, Freud mused over the role of psychological factors in chronic pain (Breuer & Freud, 1957). Addressing the issue of psychogenesis in a possible instance of fibromyalgia, Freud was open-minded and temperate.

There were numerous hard fibers in the muscular substance, and these seemed to be especially sensitive. Thus it was probable that an organic change in the muscles of the kind indicated was present and that the neurosis attached itself to this and made it seem of exaggerated importance (Breuer & Freud, 1957, pp. 137-138).

The circumstances indicate that this somatic pain was not *created* (Freud's italics) by the neurosis but merely used, increased and maintained by it. I may add at once that I have found a similar state of things in almost all the instances of hysterical pains into which I have been able to obtain an insight. There had always been a genuine, organically-founded pain present at the start (Breuer & Freud, 1957, p.174).

Freud's disciples, on the other hand, could be strident. For example, James Halliday, a disability examiner for the Scottish health department in the 1930s, argued with great zeal for unidimensional psychological determinism in fibromyalgia. To Halliday, a fibromyalgia patient's difficulty in bending was a symbolic protest that "I am an upright man and do not stoop to low pursuits" (Halliday, 1937a, p. 216). He could find "no basis for the opinion sometimes expressed
that psychoneurosis is nearly always a superstructure on a real organic illness" (Halliday, 1937b, p. 265). In essence, Halliday dismissed fibromyalgia and other chronic pain conditions as neurosis at best, outright malingering at worst.

The influence of psychoanalysis in American medicine peaked in the 1950s with the publication of Franz Alexander's text, *Psychosomatic Medicine* (Alexander, 1950). Alexander was a leader of the Chicago Psychoanalytic Institute and the founder, in 1939, of the journal *Psychosomatic Medicine*. Through these publications, Alexander spread the umbrella of psychoanalysis over a diverse swath of medicine, including hay fever, arthritis and tuberculosis. At its zenith, however, in the work of Alexander and his predecessors, the psychoanalytic model of chronic pain contained a serious weakness. It was based on anecdote and case report. I could not find a controlled trial of either psychoanalysis proper or a psychodynamically based therapy for chronic pain among the hundreds of studies cited in standard psychosomatic bibliographies through the 1940s (Alexander & French, 1948; Dunbar, 1935).

**Psychoanalytic Case Study**

Helen Weber's headache study (Weber, 1932) captures the psychogenic approach that came to dominate medicine in the first half of the 20th century. Her patient, called "Q," was a 56-year-old married woman who had suffered from migraine since childhood. Nervous and self-conscious, the woman dreaded strangers and strange places and feared leaving home even for short trips. As a child she was troubled by night terrors, nocturnal enuresis, and other "definite neurotic symptoms." Her father was overindulgent, her mother cruel and rejecting. The author believed this left Q with a legacy of wounded pride and a chronic longing for motherly affection.
Weber pointed to the timing of attacks as evidence of their emotional origin. Q's headaches would often occur within an hour or two of a disappointment or interpersonal conflict. To Weber, this temporal pattern confirmed that headaches were an outlet for an underlying hostility that belied the patient's outward submissiveness. As such, headaches served practical and intrapsychic purposes. They allowed the patient to avoid confrontations with her mother and overt expressions of hostility.

Broadly speaking the goal of psychoanalytic headache therapy was to help patients uncover the practical and psychological purposes of their headaches. Interpretation and insight were the primary means of discovery. Throughout the analysis, Weber called attention to the symbolic significance of headache triggers and consequences. For example, Weber reasoned that an inordinate love of home explained her patient's relief upon returning to bed during a headache, and her general reluctance to travel. Home appeared to represent both mother and womb to Q, a safe haven where she could have "all her needs supplied without effort on her own part." More fundamentally, Weber sensed a pervasive narcissism in her patient. To Weber, this narcissism and the unconscious sense of omnipotence it engendered psychologically fueled Q's headaches. In the service of her narcissism, headaches became a "strategy" for compelling compassion from her mother as a child and from her husband later in life.

As the analysis proceeded, Q increasingly recognized the role of narcissism in her basic character, in her "blind urge to dominate," and in her headaches. She became aware of the "infantile methods" she used to control others both as a child and an adult. Gradually, this growing awareness of unconscious needs and motivations enabled Q to take on more adult
responsibilities. She abandoned her "attention-coercing" headaches and other immature means of obtaining gratification. By the end of treatment she was headache-free for long periods of time.

**Origin of the Biopsychobehavioral Model**

A challenge to psychoanalysis began to unfold in the 1930s and 1940s. The challenge came from behaviorism, an approach rooted in the laboratories of Watson, Pavlov, and Skinner. Behaviorism rejected Freud's innate drives and unconscious motivations as the main drivers of psychological development, in favor of conditioning (Dobson & Dozois, 2010). Like psychoanalysis, behaviorism encompassed both a worldview and a treatment. The clinical application of behaviorism was behavior modification. Psychologists initially used behavior modification for childhood habit disorders such as tics and bedwetting. As procedures for relaxation and mental imagery were perfected, practitioners took on a more ambitious clinical agenda for both children and adults. They reconceptualized phobias, for example, as problems of conditioning rather than repression. Treatment now focused on substitution of more effective responses to an aversive situation – for example, muscle relaxation in place of tension, and approach instead of avoidance. And success might be measured by completion of an airplane trip rather than the decoding of the symbolism of a fear of flying.

**The Real Significance of Biofeedback**

The advent of two new treatments – biofeedback and cognitive-behavioral therapy – turned the attention of behavior therapists to chronic pain and other medical disorders. Psychologists initially used biofeedback as a laboratory tool for studying the conditionability of
physiological responses that were not normally under voluntary control. By providing immediate feedback and rewards following slight random fluctuations, researchers discovered that cats and monkeys could learn to reduce heart rate, blood pressure, and even intestinal activity. Although some results could not be replicated, a serendipitous discovery shifted the focus from animal research to humans. During a blood flow biofeedback study at the Menninger Foundation in the 1960s, one of the participants developed a migraine (Sargent, Solbach, Coyne, Spohn, & Segerson, 1986). The attack ended at precisely the moment her hand temperature rose 10°F due to an increase in blood flow. Others who volunteered for blood flow training had similar experiences. Soon "handwarming" became a watchword in the treatment of migraine.

Encouraged by these results, behaviorally minded psychologists began to explore ways of applying the most robust of the conditionable responses, skeletal muscle tension, in the psychological clinic.

Two of their earliest targets were musculoskeletal pain and headache. True to its roots in conditioning research, this therapy was viewed as a learning process. Like progressive muscle relaxation, biofeedback would be taught rather than administered, and the therapeutic use of biofeedback would come to be known as "biofeedback training." The goal of therapy was to teach the patient to recognize and reduce muscle tension at will. Using biofeedback equipment in the psychologist's office and relaxation exercises at home, patients learned to decrease muscle tension and overall physiological arousal during daily activities. A handful of biofeedback trials for headache and other disorders supported the efficacy of this innovative behavioral therapy (Ferraccioli, et al., 1987). These early trials, however, with their small samples and modest improvement rates, are of only limited importance for their outcomes. Clinical research and
experience over the next 30 years established biofeedback as a useful if relatively minor tool in the multimodal treatment of chronic pain. The real significance of the early biofeedback trials was that they brought behavioral psychologists into the treatment of chronic pain. In so doing, biofeedback laid the foundation for a biopsychobehavioral approach to chronic pain that was not predicated on a psychological etiology. Chronic pain would be treated like other organic disorders with a behavioral component. As the diabetic could be taught new eating habits, people with chronic headache or back pain could be taught to relax the muscles.

The melding of cognitive therapy and behavior therapy gave the second big push to the biopsychobehavioral approach to chronic pain that was emerging in the 1970s (Dobson & Dozois, 2010). With a richer set of clinical tools, cognitive-behavioral therapy could offer richer therapeutic possibilities. In addition to a reduction in muscle tension, it was now reasonable for a treatment plan to list significant changes in lifestyle. The new treatment borrowed from cognitive therapy, a form of psychotherapy developed by Albert Ellis, a psychologist, and Aaron Beck, a psychiatrist. Working independently, Ellis and Beck devised similar therapies. Both rested squarely on the interdependence of thought, feeling, and behavior. Over the next two decades, this perspective fused with the behavior therapist's appreciation of observable habits and actions to form a comprehensive psychobehavioral treatment. Today cognitive-behavioral therapy is widely practiced throughout the world. It is the psychobehavioral treatment of choice for chronic pain and a growing list of medical conditions (Arnberg, Alaie, Parling, & Jonsson, 2013).

In cognitive-behavioral terms, the issues and thoughts in chronic pain are those of any chronic illness or disabling condition: identity ("I'm unable to take care of my children");
depression and anxiety ("Nothing can help me"); and physical limitations ("I can't even make my bed"). Behavioral assignments abound. For example, patients may be asked to schedule a daily productive task, or practice goal-setting to reduce overactivity or medication use. If emotional difficulties surface, they are usually addressed as the consequence of chronic pain or as comorbid conditions.

**Cognitive-Behavioral Case Study**

Martin's prototypical headache study (Martin, 1993) illustrates many of the basic premises and procedures of CBT in pain management. It contrasts sharply with Weber's psychoanalytic report described earlier. Where Weber inferred and interpreted (her patient's unconscious motivations, symbolism, and strategies), Martin taught and encouraged (the practice of physiological self-control, the challenging of inaccurate beliefs, and the testing of new behaviors). Clare was a 32-year-old former teacher who had been married for 7 years. She had three young sons. Her migraines began in childhood and remained episodic into early adulthood. Several years prior to treatment, they transformed into near daily tension-type headaches. In Claire's words, these headaches now "dominated my life." She could barely keep up with household responsibilities, had difficulty managing her children, and took part in few social or leisure activities. During headaches Clare would "verbally abuse" the children, often screaming and shouting through the house. Headaches were also taking a toll on her marriage. She would frequently ask her husband to leave work in order to care for the children. Her husband, Jim, would oblige but was usually "lousy about it," expressing his resentment by "going out of his way to create a mess in the house." Clare described herself as nervous, touchy and thin-skinned. On psychological testing, she registered a high level of anxiety and mild depression.
Claire's treatment began with the recording of headaches and medication use for 2 weeks. Self-monitoring continued throughout treatment, with the daily logging of stressful events, triggers, headache related emotions, and maladaptive thoughts, prior to, during, and following attacks. The initial stage of treatment focused on training in physiological self-control techniques such as muscle relaxation, attention diversion, and the use of imagery. The purpose was to provide tools for managing pain, anxiety, and physical tension daily, as well as during headaches. Claire's self-monitoring logs helped set the agenda for the cognitive and behavioral components of treatment. They pinpointed four treatment targets: reducing counterproductive thinking immediately prior to and during headaches; increasing leisure activities; improving parenting skills; and teaching Claire's husband to promote wellness behavior in place of illness behavior.

Martin drew from the standard cognitive-behavioral repertoire for each problem area. He used cognitive procedures to help Clare learn to identify, challenge, and alter unrealistic expectations about her children, her ability to cope with severe headaches, and her guilt over being chronically ill. These procedures produced significant changes in dysfunctional thinking. For example, Clare was able to identify and temper a pervasive thought – "Simon [her son] always wants to be the center of attention" – and underlying belief – "Children should always be well behaved" – that were at the root of much child-rearing frustration. Behavior modification procedures were also highly effective, especially with family concerns. Through contingency management, role playing, and homework assignments, Jim became less overtly critical of his wife's irritability during headaches, while Clare learned to substitute coping skills for Jim's help.
during attacks. Midway through therapy, Clare began to explore a variety of leisure activities. Eventually she became actively involved in a community musical, her son's T-ball team, and a course in computer programming. Over 5 months of therapy, her headaches steadily declined and by her last session (#15), frequency and intensity were down more than 95%, and medication use had decreased from 4 pills/day to none.

**Retreat of the Psychogenic, Rise of the Biopsychosocial**

The treatment described by Martin is a good example of the psychobehavioral approach that gradually replaced the psychogenic model in the final decades of the last century. The impetus for this transition came as much from biomedical research as from psychology. In near lockstep, the psychogenic model retreated in condition after condition as developments in disease mechanisms and medical therapies advanced. The rethinking of asthma and peptic ulcer are especially instructive.

In the 1940s, the psychodynamic explanation of asthma centered on a fear of abandonment (Gerard, 1948). Burdened by guilt associated with forbidden sexual and aggressive impulses, especially toward a sibling, the child developed a lifelong fear of parental abandonment. Guilt and fear would periodically push through the blinders of repression in the form of an asthma attack. At whatever age, this symbolic reenactment of separation from mother would reduce the asthma sufferer to a "shrieking, helplessly sprawling newborn child with blood-red, swollen face" (Gerard, 1948, p. 245). Treatment consisted of identifying and expressing sexual and aggressive desires to a therapist who acted as an accepting mother substitute. On another track, researchers pursued the pathophysiology of asthma (Diamant, Boot,
& Virchow, 2007). Basic research began to conceive of the condition as a possible hereditary inflammatory disorder as early as the 1940s. As research progressed in neurotrophins, genetics, and immunological technologies, asthma came to be understood as a chronic inflammatory disorder related to a combination of genetic and environmental factors. The disintegration of the psychogenic model in peptic ulcer was even more dramatic. At the height of psychoanalytic influence in medicine, Weiss and English (1943) made the psychogenic case for peptic ulcer that was to become a paradigm for psychologically based disorders. They described a mechanism – autonomically induced changes in the stomach caused by an unconscious dependency conflict; experimental studies – demonstrated increases in hypersecretion, hypermotility, and hypertonicity in animal models following intraventricular injection of pilocarpine; and a psychological treatment – psychoanalytic work with ulcer patients as reported by Franz Alexander. And then in the 1980s, with the discovery of H. pylori, the paradigm swiftly collapsed (Yamada, et al., 1994).

By the second half of the 20th century, research advances such as these, and a revolution in pharmaceuticals, pushed a biomedical paradigm to ascendancy in medicine. Psychogenesis was yielding to science. In the same period, psychologists brought their cognitive-behavioral toolkit to bear on an array of medical disorders. They also brought an orientation that gave psychological factors a contributory rather than causal role in physical illness, and highlighted the importance of lifestyle and behavioral variables. This new behavioral approach was field-tested in the pain management centers that flourished in the 1980s. In these hospital-based multidisciplinary clinics, psychologists, physical therapists, anesthesiologists, and others, fused biology with psychology and behavior.
Against this backdrop, with psychogenesis in retreat and biomedicine and behavioral medicine on the rise, Engel issued his call for a new medical model (Engel, 1977). In place of a biomedical model that assumed all disease could be fully accounted for in biological terms, Engel envisioned a model that was sensitive to the psychological and social dimensions of illness. Such a model would promote a better understanding of both the disease process and the therapeutic alliance. It would "reverse the dehumanization of medicine and disempowerment of patients [by] fostering dialogue, not just the mechanical application of protocol" (Borrell-Carrio, Suchman, & Epstein, 2004, p. 576). To do this, the new model would turn a spotlight on the relationship between clinician and patient. In his call for a more holistic perspective in medicine, Engel zeroed-in on the interpersonal. He forcefully argued that "the relationship between patient and physician powerfully influence[s] therapeutic outcome for better or for worse" (Engel, 1977, p. 132). Twenty-five years later, proponents of the biopsychosocial model continued to stress the importance of a true therapeutic alliance, as distinguished from a mere "set of linguistic tricks to get the patient to comply with treatment" (Borrell-Carrio, Suchman, & Epstein, 2004, p. 579). Engel's successors pressed the point that a therapeutic relationship based on genuineness would prevent "negation of the patient's perspective, as so frequently occurs, for example, when patients complain of symptoms that physicians cannot explain" (Borrell-Carrio, Suchman, & Epstein, 2004, p. 578).

Engel's goals were laudable but they came with a downside: An overtly psychological model could re-open the door to psychological mislabeling that would undermine the therapeutic alliance it sought to strengthen. Several authors have suggested that this has, indeed, been the
case. One group (Shakespeare, Watson, & Alghaib, 2017) accused a conservative British government of using the biopsychosocial model to reduce disability benefits by "blaming the victim." In a compelling argument, these authors charged officials with misapplying the biopsychosocial model to show that "it is the negative attitudes of many recipients [of disability benefits] that prevent them from working, rather than their impairment or health condition" (Shakespeare, Watson, & Alghaib, 2017, p. 23). Another group (Epstein, Quill, & McWhinney, 1999) called attention to a more subtle problem with the biopsychosocial model. These critics raised the possibility that clinicians may invoke the model (or, more precisely, the psychological component) only when they encounter difficult patients or unexplained disorders. This tendency to draw upon the biopsychosocial model selectively, to think biopsychosocially only in the most challenging cases, is an incubator for psychological mislabeling. It runs completely counter to Engel's effort to promote multidimensional thinking about illness in general. A third paper (Hancock, Maher, Laslett, Hay, & Koes, 2011) put the question directly: "What happened to the 'bio' in the bio-psycho-social model of low back pain"? These papers highlight the risk of psychological mislabeling that is inherent in a psychologically informed medical model.

**Clinical Considerations**

Clinicians can reduce the risk of real or perceived psychological mislabeling by making the underlying assumptions of behavioral pain management explicit. For example, clinicians can make clear that a referral for CBT is a referral for pain management training and not for psychotherapy. It is also useful to make patients aware that behavioral pain management treats chronic pain as a biologically-based disorder. It is not caused by depression, anxiety, emotional trauma, or stress, although any of these factors can influence chronic pain as they can any other
medical disorder. Moreover, behavioral practitioners do not view a nonresponse to medication, physical therapy, or surgery as an indicator of psychological involvement. These reassurances can be therapeutic for patients who have been demoralized by the suggestion from friends, family, or previous healthcare providers – directly or through innuendo – of an underlying psychological problem. Reaffirming the biological side of chronic pain can be useful for clinicians as well. It can serve as a reminder that a nonresponse to medical therapy likely has more to do with our limited understanding of the pathophysiology of pain than with hostility or narcissism; and it can remind the clinician to not reach too quickly for a psychological explanation.

Review of the underlying assumptions of pain management training should also include a brief discussion of treatment goals and procedures. This discussion will further clarify that although it is typically carried out by psychologists, behavioral pain management is not psychotherapy. The primary goal of treatment is not the alleviation of emotional distress. It is the improvement of function. Procedures focus primarily on pain management, for example, the avoidance of triggers and flares, rather than emotional regulation or the development of insight, as is typical in psychotherapy. At the same time, patients should know that emotional issues they wish to raise or that come up during treatment can be readily addressed as part of pain management training.

The shift from a psychogenic to a biopsychosocial model highlights the provisional nature of our insights. At the beginning of the 20th century, the psychogenic model appeared to offer a psychological inroad into the cause and cure of a host of medical disorders. Within
decades the model was swamped by advances in basic research and pharmacotherapy. Today, the psychosomatic handbook of record does not endorse a psychological etiology for any of the "psychogenic" disorders described in its 1940s counterpart (Levenson, 2011). Instead, we are guided by a biopsychosocial model. It is "bio" because many illnesses have yielded to biological solutions. It is "psychosocial" because many have not. But we expect they will in the future. Alternatively, a truly unitary model may emerge in which the biological, psychological, social, and behavioral lose their separate identities. For now, however, the biopsychosocial model provides a workable balance across differing perspectives. It remains our (provisional) medical model of choice.

**References**


