



# The Psychomedical Theory Behind the BHI 2

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## Overview

Since the time of Descartes, mind and body have generally been treated as separate and self-contained entities, and the organization of modern medicine reflects this. Modern medicine tends to create a schism between subjective and objective, organic and functional, and medical and psychological. However, evidence suggests that this is a false dichotomy.

The term *psychosomatic* has sometimes been used to refer to medical disorders involving the interaction of mind and body. However, this term is generally used to refer to only a small subset of medical disorders, and it often denotes only those disorders whose etiology is believed to be related to psychological problems. When it is used in this sense, Campbell (1989) points out, "the term psychosomatic is unfortunate, for it implies a dualism that does not exist. No somatic disease is entirely free from psychic influence, just as even in the purest psychic disturbances there are organic-constitutional factors" (p. 597). Similarly, terms such as *somatoform*, *psychophysiological*, and *biopsychosocial* are used to refer to more narrowly defined groups of disorders and fail to capture the full scope of the possible interactions between mind and body.

In contrast, *the term psychomedical refers to all disorders that have related psychological and medical components*. This includes a broad spectrum of disorders, ranging from impossible medical symptoms reported by a hypochondriac to psychological deterioration secondary to Alzheimer's, and from death fears associated with terminal cancer to physical fatigue resulting from major depression. This is an intentionally broad definition, which some may regard as being overly inclusive. However, the idea of a close association between psychological and

medical problems has strong empirical support not only in general areas of medicine such as primary care but also in more specialized areas such as rehabilitation and chronic pain treatment.

## **Psychomedical Conditions in Primary Care**

The relationship between psychosocial factors and physical symptoms is very evident in primary care settings. In a study of the 10 most common physical complaints in primary care settings, 85% of the patients investigated had no diagnosable organic etiology after a three-year follow-up, suggesting that psychosocial factors were the motivating force behind the preponderance of visits to primary care physicians (Kroenke & Mangelsdorff, 1989). Strosahl (1998) reported similar conclusions: 90% of patients had no organic basis for their complaints after a 10-year follow-up. Consistent with these findings, *a 20-year longitudinal study at a large HMO estimated that 60% of all primary care visits were attributable to psychological concerns* (Cummings & VandenBos, 1981).

Tulkin and Gordon (1998) took this research a step further by focusing on the psychological conditions that are seen most often in primary care settings. Their results indicated that the most common diagnoses for patients with no demonstrable organic etiology were pain and somatization (25%), depression (20%), anxiety and panic (20%), job stress (10%), and marital and family problems (10%).

The overwhelming prevalence of psychological disorders seen in primary health care settings has led some to suggest that the principal role of primary care is to provide mental health services and that primary care is the de facto mental health system in the United States (Regier et al., 1993). Unfortunately, the primary care system is generally not designed to deal with psychological problems. As a result, such problems often go unrecognized and untreated. An analysis of five studies revealed that psychiatric disorders are overlooked by primary care physicians between 33% and 79% of the time (Higgins, 1994). Another study found that the average patient with a panic disorder is seen by nine specialists before a definitive mental health diagnosis is made (Strosahl, 1994).

It is important to recognize that psychological conditions play a role in primary care beyond the mere perception of symptoms or compliance with treatment. Of the 15 leading causes of death in the United States, 13 are known to be related to behavior and lifestyle factors (e.g., diet, exercise, and tobacco use). For these 13 causes of death, psychological interventions to manage behavioral risk factors are a primary means of prevention and often play a pivotal role in the rehabilitation process (Wiggins, 1994). Psychological conditions have also been shown to play a role in blood pressure management (Crippa, Bertoletti, Bettinardo, Calandra, & Carrara, 2000; Jula, Salminen, & Saarijarvi, 1999; Markovitz, Jonas, & Davidson, 2001; Williams, Nieto, Sanford, & Tyroler, 2001), immunological resistance to cancer and infection (Kiecolt-Glaser & Glaser, 1999; Miller, Dopp, Myers, Stevens, & Fahey, 1999; Takahashi et al., 2001), surgical outcome (Schofferman, Anderson, Hines, Smith, & White, 1992), mortality due to heart disease (Cossette, Frasure-Smith, & Lesperance, 2001; Donker, 2000; Frasure-Smith et al., 2000), and wound recovery (Kiecolt-Glaser, McGuire, Robles, & Glaser, 2002; Marucha, Kiecolt-Glaser, & Favagehi, 1998).

Given the prevalence of psychological conditions seen in primary care medicine, there may be concerns about the possibility of committing the psychological fallacy (see page xx) while overlooking actual organic conditions. It goes without saying that the existence of psychological disorders does not preclude the possibility of underlying organic disorders. However, although injury and disease are often seen in primary care settings, data suggests that they generally appear in the form of illness (which is a combination of distress and disease) or suffering (which is a combination of distress and pain).

Research has found that the inclusion of psychological services in primary care can lead to reductions in the number of medical visits by 30% to 40% (Strosahl, 1998) and reductions in medical costs by 20% to 40% (Chiles & Lambert, 1999; Friedman, Sobel, Myers, Caudill, & Benson, 1995; Strosahl & Sobel, 1996). Furthermore, it has been pointed out that if a new medical procedure were supported by evidence that is as strong as the evidence for psychosocial interventions for medical patients, it would be readily accepted. The fact that such services have not been more widely integrated in health care is regarded by some as an indication of groundless biases against psychological approaches, which need to be reexamined (Sobel, 2000).

### *Psychomedical Aspects of Injury*

Serious injuries are often life-altering events to which patients may respond with depression, anxiety, or anger. Of the more than 50 million traumatic injuries in the United States annually, many result in pain and disability (Knapp & Koch, 1984). According to the *DSM-IV-TR*, it is estimated that 10–15% of U.S. adults in any given year experience some form of work disability due to back pain alone (American Psychiatric Association, 2000). Psychiatric conditions are common in such patients. One study reported that of 1,595 injured patients, 64% had one or more diagnosable psychiatric disorders, compared to 15% in the general population (Dersh, Gatchel, Polatin, & Mayer, 2002). Other studies of injured patient populations found a 51% incidence of personality disorders (Polatin, Kinney, Gatchel, Lillo, & Mayer, 1993) and a 55% incidence of depression (Maruta, 1989). Even minimal levels of depression have been associated with increased rates of social morbidity and service utilization (Broadhead, Blazer, George, & Tse, 1990). Thus, the research literature suggests that psychological problems are common among patients in rehabilitation. Left undetected and untreated, these problems may impede a patient's progress in treatment and lead to long-lasting symptomatology (Borus, Howes, Devins, Rosenberg, & Livingston, 1988).

Psychosocial factors have also been found to contribute to the significant risk factors involved with injuries. In a critical review of the literature conducted by NIOSH (National Institute for Occupational Safety and Health, 1997), it was determined that there was mounting evidence that psychosocial factors play a role in the development of work-related musculoskeletal disorders. One study found that up to half of all traumatic brain injury hospitalizations are associated with alcohol intoxication, and up to two-thirds may be associated with a history of substance abuse (Corrigan, 1995). Another study concluded that risk of injury was increased by depression, anxiety disorders, and substance abuse (Silver, Kramer, Greenwald, & Weissman, 2001). Patients reporting drug or alcohol abuse were also found to be more likely to sustain violent injuries (Drubach, Kelly, Winslow, & Flynn, 1993). In the workplace, job satisfaction has been found to play a significant role in the report of injury (Bigos et al., 1992). Further, the American Hospital Association (1993) found that when employees suffer from mental health or substance

abuse disorders, job productivity is reduced and workers' compensation costs, absenteeism, and off-the-job accidents increase.

Among those who report injuries, psychosocial factors play a major role in delayed recovery. One study demonstrated an ability to predict delayed recovery for patients with acute conditions 91% of the time without using medical information (Gatchel, Polatin, & Mayer, 1995). Another study found that psychosocial factors play a dominant role in surgical outcome (Schofferman et al., 1992). *In a World Health Organization study of more than 26,000 medical patients from around the world, psychosocial factors were found to play a primary role in determining who becomes disabled* (Ormel et al., 1994).

Research has found that approximately 80% of the costs associated with back injury result from 10% of the claimants experiencing more than one month of work incapacity (Battie & Bigos, 1991) and that psychosocial factors were strongly implicated in these return-to-work delays. Consequently, identifying psychosocial factors that may be contributing to these costs is paramount to successful treatment outcome and cost containment. Research suggests that when psychological conditions are identified and treated, they are much less likely to interfere with rehabilitation outcome (Gatchel, Polatin, Mayer, & Garcy, 1994).

Not surprisingly, the clinical practice guidelines of the Agency for Health Care Policy and Research suggest that clinicians consider psychological and social factors in their interactions with patients and in their patient management strategies (U.S. Department of Health and Human Services, 1994a). With these guidelines in mind, the BHI 2 was developed using an injured patient population, making it especially well-suited for the assessment of these patients.

## **Psychomedical Aspects of Pain**

Pain accounts for more than 35 million office visits a year, and it is the most common reason that an individual seeks medical treatment (Knapp & Koch, 1984). It is so prevalent, in fact, that research has shown that the cost associated with the treatment of pain far exceeds the costs attributable to the treatment of other disorders, such as heart disease, respiratory disease, or cancer (Fishman, Von Korff, Lozano, & Hecht, 1997). Pain is a condition that has both medical and psychological components.

The complex nature of pain has not always been appreciated. Descartes likened pain to a bell tower. Just as pulling on a bell tower's rope rings a bell, stimulation of a peripheral nerve was thought to ring the "pain bell" in the brain. Descartes' model of pain was dominant for centuries. Despite the fact that it is totally unsupported by empirical research, it continues to be used by some who adhere to a purely biomedical model and fail to take psychosocial factors into consideration.

A much more sophisticated model of pain is described by the International Association of the Study of Pain (IASP). The IASP defines pain as being not only a sensation but also an emotion. It describes pain in the following manner:

Pain is always subjective. Each individual learns the application of the word through experiences related to injury in early life. Biologists recognize that those stimuli which cause pain are liable to damage tissue. Accordingly, pain is that experience which we associate with actual or potential tissue damage. It is unquestionably a sensation in part or parts of the body, but it is also always an unpleasant and therefore also an emotional experience. . . . *Many people report pain in the absence of tissue damage or any likely pathophysiological cause; usually this happens for psychological reasons.* . . . [Pain] is always a psychological state, even though we may well appreciate that pain most often has a proximate physical cause. (Merskey & Bogduk, 1994, p. 210).

To understand the relationship between the experience of pain and various other psychological factors, consider a child who skins his/her knee and cries out in pain after slipping and falling on a rock for the first time. What is the child feeling? Is it a simple nociceptive sensation of pain? Is it anger directed at the rock? Is it fear caused by feelings of vulnerability and the sight of his/her own blood? Most likely, the child's pain is an indivisible conglomeration of all of these experiences. The IASP definition of pain points out that it is through early life experiences such as these that individuals come to know the meaning of the word *pain*. The same principle can be extended into adulthood, where these sensations are combined with the associated emotional distress to form an undifferentiated mass of bad feelings and suffering, typically labeled generically as *pain* (Fordyce, 1988).

One of the strengths of the BHI 2 test is the way it assesses pain. The BHI 2 is the first assessment to have a nationally standardized 0–10 pain rating scale that assesses multiple dimensions of the pain experience. Because the assessment of pain is such a complex process, the evaluation of both medical and psychological conditions is typically required. For example, physical pain can lead to emotional distress, which can increase the overall level of a patient's suffering. Emotional distress can in turn aggravate the perception of pain and, in some cases, can actually be the cause of pain (e.g., tension headaches). This relationship between psychological and medical processes is true not only for pain but for the perception of somatic symptoms and disability as well.

Overall, available data about primary care, pain, and injury strongly supports the psychomedical hypothesis that to a large extent psychological and medical conditions are inseparable. Integrating psychological services into primary care will require a method by which psychological conditions in medical patients can be assessed and tracked over time. The BHI 2 test provides just such a method. By assessing a number of medical variables common to the treatment of pain and injury in primary care, the BHI 2 can play a useful role in diagnostics and progress tracking for treatment.

### ***Types of Psychomedical Disorders***

To better understand the various types of psychomedical disorders, two distinctions are useful. The first involves determining whether a psychomedical disorder appears to begin with physical (i.e., physiogenic) or mental (i.e., psychogenic) events. Making this distinction has important clinical implications for the nature of the treatment that is offered. The second important

distinction involves identifying the apparent connection between mind and body symptoms. In other words, it is useful to distinguish how an organic illness or injury leads to psychological problems and how a psychological condition leads to physical symptoms. To illustrate these two distinctions, a four-way classification matrix of psychomedical disorders is presented in Table 2.

## **Physiogenic Disorders**

Psychomedical disorders that appear to originate with a physical injury or disease process are referred to as *physiogenic*. There are two types of physiogenic disorders: organic and reactive. Both types can be described as physical conditions that lead to psychological effects. The presence of a physiogenic disorder can generally be verified by objective medical testing. When objective medical testing is not available to verify the condition, however, greater caution must be used to rule out the possibility of a psychogenic condition. Physiogenic disorders are described in more detail below.

### ***Organic Psychological Disorders***

Organic psychological disorders are those that begin with an organic condition that directly affects the central nervous system and, in so doing, are manifested cognitively or emotionally. Some organic psychological disorders are the result of injury, such as the memory loss or heightened emotionality secondary to brain injury. In other cases, organic disorders result from disease, such as depression secondary to hypothyroidism and bipolar disorder. In such cases, the psychological symptoms are directly connected to underlying organic processes.

Research on organic psychological disorders has discovered the following.

- A retrospective study of more than 5,000 individuals found that having a severe brain injury significantly increased the lifetime risk of being diagnosed with depression, panic disorder, obsessive-compulsive disorder, phobic disorder, drug abuse/dependence, and suicide (Silver et al., 2001).
- Various organic conditions have been shown to produce a variety of psychological syndromes, including concentration problems, depression, anxiety, irritability, and personality change (Beers & Berkow, 1998). While illness and injury can be manifested psychologically in a number of ways, organic conditions that affect the functioning of the brain or the endocrine system are particularly likely to produce psychological effects.

### ***Reactive Psychological Disorders***

Reactive psychological disorders are characterized by an emotional reaction to an organic disease or injury. The emotional reaction has no direct physical link to the organic problem. For example, a patient who is diagnosed with a malignant melanoma may react with depression or panic, but there is no direct physical link through which a tumor can induce these symptoms. In these disorders, the psychological symptoms are produced by an emotional reaction to the perception of stressful or threatening physical symptoms.

Research on reactive psychological disorders has discovered the following.

- Medical patients tend to have higher scores on measures of a variety of psychological conditions. In general, this supports the notion that there is a broad tendency for individuals to react to illness and injury with increased depression, anxiety, and somatic preoccupation (Polatin et al., 1993).
- Of 1,595 injured patients suffering from chronic work-related musculoskeletal disability, 64% had one or more diagnosable psychiatric disorders compared to 15% in the general population (Dersh et al., 2002).
- Levels of depression decreased with successful treatment of low back pain (Barnes, Gatchel, Mayer, & Barnett, 1990).

## **Psychogenic Disorders**

A psychogenic disorder is one in which an individual's psychological processes trigger the onset of a psychomedical disorder. Although the term *psychogenic* has negative connotations for some, this is largely unwarranted. Like physiogenic conditions, psychogenic conditions are common, valid, and deserving of care by qualified professionals. There are two types of psychogenic disorders: psychophysiological and somatizing. Psychophysiological disorders begin with emotional distress that gives rise to physiological arousal, resulting in the appearance of objective physical symptoms (Selye, 1976). Somatizing disorders begin with psychological or social factors that cause the perception or report of physical symptoms even though there are no detectable organic disorders present (Ford, 1986). These disorders are described in more detail below.

### ***Psychophysiological Disorders***

A psychophysiological disorder has its origin in mental processes, but it comes to have an objective effect on the body through an organic connection. Strong emotional reactions can cause hundreds of physiological changes in the body, including accelerated heart rate, increased blood pressure and muscle tension, cooling of the hands and feet due to vascular constriction, and rapid respiration, to name just a few (Selye, 1976). When a patient experiences psychophysiological reactions such as these, his/her medical condition can be significantly affected. Some psychophysiological disorders, such as tension headaches, are very common. Other types are the product of behaviors that are under the direct control of psychological processes. Behaviors such as diet, exercise, smoking, and chemical dependency have all been strongly implicated in a wide variety of physical disorders. In fact, the onset and prognosis of recovery of many serious medical conditions are known to be related to behavioral variables and lifestyle factors (Wiggins, 1994).

Research on psychophysiological disorders has discovered the following.

- In a series of childhood sexual abuse and physical trauma studies, researchers found that abuse and trauma may lead to long-term physical effects, possibly due to chronic hyperarousal (DeBellis, Chrouson, et al., 1994; DeBellis, Lefter, Trickett, & Putnam, 1994; Heim & Nemeroff, 2002; Heim, Newport, Bonsall, Miller, & Nemeroff, 2001; Heim et al., 2000).

- In a study of patients undergoing lumbar spine surgery, it was found that patients with evidence of serious childhood psychological trauma had an 85% likelihood of an unsuccessful surgical outcome compared to 5% for patients with no childhood trauma (Schofferman et al., 1992).
- In a meta-analytic review of the literature, Booth-Kewley and Friedman (1987) found that depression and hostility are significantly associated with an increased risk of coronary heart disease.
- The field of psychoneuroimmunology has produced evidence that psychological stress can suppress the functioning of the immune system (Kiecolt-Glaser & Glaser, 1999; Koh & Lee, 1998; Maier, Watkins, & Fleshner, 1994; Miller et al., 1999; Takahashi et al., 2001).

### ***Somatizing Disorders***

Somatizing disorders, like psychophysiological disorders, have their origin in psychological processes. However, they differ in that there are no detectable organic changes in the body. This group of disorders includes somatoform, factitious, and malingering disorders. In somatoform disorders, psychological processes give rise to the experience of physical symptoms that are perceived as organic in nature. Most somatizing disorders involve a misguided pursuit of a medical solution to a problem that is essentially psychological in nature. In general, individuals with somatizing disorders have underlying psychological problems and wrongly attribute their physical symptomatology to a medical condition while denying the underlying psychological dynamics. This tendency to medicalize symptoms may be motivated by the patient's social environment.

Factitious disorders and malingering are associated with less benign psychological motivations, involving the conscious feigning or production of symptoms. In the case of factitious disorders, the voluntary production of symptoms tends to be associated with primary gain, such as when an individual is motivated to assume the patient role. In the case of malingering, the voluntary production of symptoms is associated with secondary gain (e.g., financial compensation). In many cases, malingering is a criminal activity.

Despite the differences between somatoform, factitious, and malingering disorders, they all involve the report of physical symptoms that cannot be medically corroborated.[\[1\]](#) Of these disorders, somatoform disorders appear to be the most common.

Research on somatizing disorders has discovered the following.

- In a 20-year study conducted by Cummings and VandenBos (1981), more than 60% of all medical appointments investigated were made by individuals with no diagnosable physical disorder.
- In a series of occupational health studies consisting of more than 31,000 employees, it was found that psychosocial factors exceeded medical factors in the prediction of which employees with back pain were likely to file workers' compensation claims (Battie & Bigos, 1991; Bigos et al., 1986a, 1986b).

- In a study of physical disability that spanned 14 countries and consisted of nearly 26,000 patients, it was found that physical limitations were more closely associated with psychological conditions than with medical conditions (Ormel et al., 1994).
- In a series of studies investigating the Australian work force, it was found that the repetitive strain injury (RSI) epidemic beginning in the 1970s was more heavily influenced by psychological and social factors than physical factors (Kiesler & Finholt, 1988).

## **Clinical Application**

When a patient enters the medical system, the presumption should be that he/she is suffering from a physiogenic disorder. If a medical condition is present, it should be treated. In those circumstances when all medical tests are negative and there are no clear findings upon examination, the possibility that psychological factors are involved increases proportionately. In general, the likelihood that psychosocial factors are playing a role increases as psychosocial risk factors increase in quantity and severity (see Appendix F). When such risk factors are present, psychological assessment is indicated. For example, if a patient complains of tightness in his/her chest, physical explanations must first be ruled out (e.g., a variety of cardiovascular and pulmonary problems). If medical diagnostics and clinical examinations reveal no clear medical explanations, psychological factors should be explored through clinical interview, psychometric assessment, or a variety of other approaches.

With regard to treatment, if a patient's psychological and physical symptoms are thought to be physiogenic, medical therapies will probably be the primary means of alleviating the reported symptomatology. Conversely, if a patient's symptoms are thought to be psychogenic, psychological treatment will probably be the primary intervention. However, the purpose of treatment should not be to classify patients as having either a medical or a psychological condition, but rather to consider the situation from the standpoint of both dimensions. A patient with a psychogenic condition (e.g., somatization) may prove frustrating for a physician when the patient does not respond to medical treatment. Similarly, a patient with a physiogenic condition (e.g., depression secondary to hypothyroidism) may frustrate a psychologist when the patient does not respond to psychotherapy. In either case, it may be tempting to blame the patient for failing to progress. However, the most likely cause is misdiagnosis or inappropriate treatment. A patient with either type of condition will fail to progress given the wrong type of treatment, leading to frustration for both the caregiver and the patient. In the final analysis, the contributions of both psychological and medical factors should be assessed to determine the most effective approach to treatment.

The BHI 2 test can be used along with traditional medical diagnostic tests as a standard part of psychomedical assessment. It can be used to identify a number of important psychological concerns and physical complaints. Beyond this, repeat assessment with the BHI 2 can be used to track changes in psychological and medical variables during the course of treatment.

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[1] In some cases of factitious disorders, a self-destructive act can lead to actual medical problems (e.g., ingesting a toxic substance). This type of disorder would more properly be classified as psychophysiological because psychological factors lead to an objective medical condition that may require treatment.

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