CROCKS, QUACKS, AND SHRINKS

Pain syndrome patients, in their desperate search for the elusive cure, often chase "windmills" and convince their doctors to perform a myriad of invasive tests and procedures. As a result of their pain behaviors, many experience iatrogenic complications, suffering and disability. Those involved in their treatment must find improved ways to detect this highly susceptible population, establish a therapeutic alliance and short-circuit their pain careers. . . . Do the health care providers truly get to know the patients and their psychosocial dilemmas which, as studies indicate, often contribute to or cause the medical complaints? Or is this lack of rapport an unavoidable consequence of the increasing depersonalization within the medical system? The now antiquated model of the physician-healer who visited the patient's home has been replaced by the all too frequent scenario of the patient who takes a tranquilizer before going to the physician's office.

—G. M. Aronoff, M.D.,
The Clinical Journal of Pain, 1985

In 1950, health care costs accounted for 4.6% of the gross national product. In 1985, health care costs accounted for 10.8% of the gross national product (Cohen, 1985). Sophisticated biomedical technology and expensive medical tests have contributed to this cost escalation (Culliton, 1978). This massive increase in health care costs appears to have occurred without a comparable increase in health status (DeLeon & VandenBos, 1983) of United States citizens as measured by morbidity, mortality, longevity, and so on.

It appears that another major contributor to this escalating cost is the patient who presents somatic complaints without physical findings
and the patient whose somatic problems are exacerbated by psycho-
social factors. “These patients are very common in general medical prac-
tices and consume a disproportionately large fraction of physician ser-
Vices, diagnostic procedures and therapeutic resources” (Barsky &
Klermen, 1983). Studies of primary care practice report that between
68% to 92% of patients are without serious physical disease (Brown et
al., 1971; Garfield et al., 1976). It has been estimated that between 30% to
80% of patients who consult a physician have functional complaints
(Lowy, 1975). Data from the National Ambulatory Medical Care Survey
(Jencks, 1985) shows a rate of recognition of mental distress for adult
patients in primary care settings of at least double the rate of diagnosis
of mental disorder in the primary care settings. For several reasons to be
presented later, primary care physicians are reluctant to make a mental
diagnosis, to use a specific mental therapy themselves, or to refer the
patient to a psychologist or psychiatrist. Previous studies of the primary
care situation have reported that 15% to 40% of these patients have
diagnosable mental disorders (Goldberg, 1980; Orleans, George, Houp,
& Brodie, 1985). It is known that most patients with mental disorders are
seen only in the primary care sector of the medical care system (Regier,
Goldberg, & Taube, 1978). A recent national survey (Orleans et al., 1985)
of 350 family practice physicians found that 75% of them blamed patient
resistance to psychiatric referral and lack of family physician time as the
major obstacles to effective management of emotional disorders present-
ed in their practice. Insufficient physician training was also listed as a
secondary obstacle to the effective treatment of emotional disorders.
Anxiety, stress, and tension states were picked by 99% of the previously
cited physicians as among the six most commonly seen symptoms in
primary care practice. Chronic pain, gastrointestinal disorders (exclud-
ing cancer), symptoms of ill-defined conditions, and psychophys-
iological and pain disorders received frequency ratings of 93.4%, 82.9%,
81.1%, and 67.1% respectively. These figures clearly demonstrate how
frequently functionally based somatic or psychological symptoms are
presented to a nationwide sample of primary care physicians. Based on
a national survey of 16,576 visits to internists, family practitioners, and
general practitioners, by patients over age 15 years, Jencks (1985) con-
cluded that physicians may fail to record a mental diagnosis for several
reasons, including the fact that physicians (a) feel unskilled in mental
diagnosis; (b) fear that the patient will be stigmatized; (c) fear that the
patient will object to the diagnosis; or (d) fear that third parties will not
reimburse for services. It is becoming increasingly clear that efforts to
treat these patients with strictly biomedical methods (drugs, surgery,
etc.) or with expensive and sophisticated tests and procedures is a costly exercise in futility.

The failures of drugs, surgery, and sophisticated medical technology to remedy current chronic-stress-related somatic illness (e.g., cardiovascular and musculoskeletal disorders, etc.) results partly from the fact that the bulk of the stressors that impinge on most of these patients seldom involves direct and clear-cut tissue damage. The triggers for these chronic disorders are psychosocial stressors that may include an unhappy marriage or the stress of a divorce, a problem child, elderly parents who reside in your home, a hypercritical boss, unrealistic performance standards (at work or in social relationships), loneliness, or unrealistic health expectations (Benson, 1979). Frequently the stressors present as major life changes (Rahe, 1975) or multiple minor hassles or as chronic ambiguous and ambivalent feelings that progressively elicit cumulative psychophysiological hyperarousal and sustained muscular bracing (Whatmore & Kohli, 1974). It is easy to feel ambivalent about an unhappy marriage that ends in a divorce that brings relief and sadness. These complex psychosocial problems cannot be remediated by primitive fight or flight mechanisms or alternatively by modern drugs or surgery. Beating your spouse and running away are not long-term solutions to these problems, nor are benzodiazepines and symptomatic surgery. Patients need to know that when they cannot fight or flee they can learn to "flow" with what cannot be changed. Skills like cognitive reframing and low arousal training (relaxation, etc.) can facilitate acceptance of the inevitable. Yet many patients continue to seek, and many physicians to offer, exclusively biomedical solutions (drugs and surgery) to these complex psychosocial problems (Cummings, 1979).

There are probably several reasons why patients continue to look for and why physicians continue to provide exclusively medical solutions to complex human problems.

1. The mass media and voluntary health care organizations (e.g., Heart Association, etc.) continue to dramatize the real achievements of modern medicine but also create unrealistic expectations. Organized medicine has, on the whole, encouraged the belief in the physician’s omniscience. Hamburg and Brown (1978) stated, "It is probably true that expectations about the scope and abilities of medicine are out of line with reality." This propaganda needs to be moderated by a critical appreciation of the scope and limits of modern medical science. A critical appreciation of these factors includes knowledge of the base rates of pathological events, spontaneous remission rates, nonspecific effects, the distinction between palliation and cure, the role of the immune
system in recovery, and recognition that the etiology of poor health is often multifactorial (Frazier & Hiatt, 1978). Ingelfinger (1978) pointed out that

organized medicine has on the whole encouraged a belief in the doctors' omnicience rather than ignorance. The news media, whether printed or televised, compete with each other to broadcast the latest "breakthrough" with findings that are at best preliminary and at worst totally unfounded. But perhaps most culpable are the massive voluntary health groups. In one fearsome advertisement after another, these organizations suggest to the public that, if only a few more dollars were thrown in the research till, the major killer diseases would be contained. Tommy-rot. It is organizations such as these, along with medical societies, news media, and politicians that promise too much, that are in large part responsible for the fact that we are feeling worse though actually doing better. (pp. 944–945)

2. The strictly biomedical approach appears to get results in spite of ignoring psychosocial factors in dysfunction and disease. This is a tempting and seductive alternative. It does not inconveniently intrude on the patient's life-style or priorities, however maladaptive they may be to the patient's health from a long-term viewpoint. Patients would like to do all the conflicting, complex, and stressful things they do currently and insist that the "miracles of modern medicine" be prostituted to stifle the complaints (aches and pains) of their body. For example, a popular TV commercial suggests that ingesting a pill rather than reducing gluttony is the proper solution to the problem of indigestion. Medicine has clearly reached the limits of a strictly biological approach to illness, as demonstrated by the recent plea of a distinguished medical educator for a biopsychosocial model of illness (Engel, 1977).

3. The medical model appears to encourage a perception of the patient as a passive recipient of both illness and medical interventions. The patient does not appear in any way to need actively to participate in his own resistance to illness and its treatment. But, of course, this is an illusion because healing is in fact a function of the interaction of the body's own defenses against disease and trauma with the specific medical treatments. Also, psychological and behavioral reactions can potentiate or attenuate the effectiveness of medical management. There is now growing evidence that psychological and behavioral factors can increase or decrease vulnerability to physical illness and disease. For example, it has been shown that stress and depression may reduce the antibody response and that adult immunological responsivity may be related to childhood experiences (Rasmussen, 1969; Solomon, 1969; Solomon, Amkraut, & Kasper, 1974). There is preliminary evidence that psychological factors can influence the clinical course of human cancer (Krantz,
Grunberg, & Baum, 1985) and there is experimental evidence that Pavlovian conditioning can influence the immune system (Ader & Cohen, 1984). Several studies have shown that susceptibility to infectious disease is influenced by psychosocial factors (Jemmott & Locke, 1984). Retrospective and predictive studies show a strong relationship between a certain type of behavior (Type A) and the incidence of heart disease (Friedman & Rosenman, 1974; Review Panel on Coronary-Prone Behavior and Coronary Heart Disease, 1981).

An experimental study of young healthy volunteers who were exposed to experimental tularemia demonstrated that: (a) the onset of psychological mood changes (during incubation) preceded the onset of fever by at least 6 hours in 24 of 34 subjects (70.5%) who developed fever. (b) Subjects who were psychologically more vulnerable (as defined by scores on a specific scale) before exposure to infection became more severely physically ill on the average than nonvulnerable subjects during the acute illness period. They also showed greater mood change and more depressive moods during the incubation and acute illness periods. Hence it appears that persons who are psychologically vulnerable are also biologically more vulnerable. (c) Mood changes appear to be a sensitive indicator of impending changes in the biological state (Canter, 1972). In a study of 315 normal adults, significantly \( p < .001 \) more of the psychologically vulnerable subjects developed a hypersensitive reaction (erythema, induration, and/or edema at the site of the inoculation, chills, fever, diarrhea, etc.) to inoculation than psychologically nonvulnerable subjects (Canter, Cluff, & Imboden, 1972). Retrospective and now prospective studies have shown that the rate of recovery from influenza, chronic brucellosis, and respiratory infections is predictable from psychological data (Brodmann, Mittelman, Wechsler, Weider, & Wolff, 1947; Imboden, Canter, & Cluff, 1961) and a recent comprehensive review (Rogers, Dubey, & Reigh, 1979) of the evidence for the influence of the mind and brain on immunity and disease susceptibility leaves little doubt that such a functional relationship exists. But the mechanisms of such interaction remains unclear.

The previously cited studies demonstrate that psychological variables can potentiate or attenuate a person’s vulnerability to physical disease. A psychologically vulnerable individual is likely to be also biologically vulnerable. Also, the vast literature on the placebo effect in medicine demonstrates, albeit in a less systematic way, that even the active ingredient in a drug can be attenuated, potentiated, or negated in at least one-third of patients by psychological variables in patient and therapist (Shapiro, 1971; Wickramasekera, 1985).

4. Psychological interventions are intrusive, complex, and time-
consuming. They frequently conflict with established life-styles and priorities and require that patients mobilize their own resources toward the uncertain attainment of a goal. Medical interventions are typically circumscribed, nonintrusive of one’s life-style, and require a minimum of a patient’s time and effort. Hence, they are more likely to be popular with most patients.

5. The conventionally trained psychotherapist (M.D. or Ph.D.) is not eager to see these patients for several reasons. First, the “somatizing” patient’s definition and perception of his or her own problem is the major obstacle. Psychotherapy for a migraine headache has zero face validity to the patient. This perception produces a skeptical, non-compliant patient with little or no commitment to conventional psychotherapy. Second, conventional psychotherapists have typically felt ineffective with these patients and hence there may be a tacit conspiracy of silence to discourage the patient’s return. Third, many of these patients do not fit the widely recognized characteristics of the good psychotherapy candidate (who is bright, introspective, psychologically minded, middle class, etc.). In fact, it is very likely that psychotherapy is an essential but an insufficient condition for durable and effective intervention with these chronic-stress-related disorders.

6. Patients regard physical problems as totally involuntary and as making no reflection on their self-esteem, but they see psychological problems as voluntary and possibly implying a “weak” mind. The research on biofeedback demonstrates that even clearly physical problems like classic migraine are amenable to voluntary self-regulation, whereas the poor rate of response and high rate of recidivism for certain behavioral problems like obesity, smoking, and alcoholism, demonstrates the quasi-involuntary character of some chronic behavioral problems. The simplistic view that all behavioral problems are voluntary and that all medical problems are involuntary is no longer tenable.

In response to patient pressures (Barsky & Klerman, 1983; Orleans et al., 1985), lack of physical information about efficacious psychobehavioral alternatives (Jencks, 1985; Orleans et al., 1985), and perhaps in some cases because of financial incentives (Ingelfinger, 1978; Relman, 1980), some physicians continue to trot out the same old tried remedies such as tranquilizers, sleeping pills, pain pills, (Blackwell, 1975; Cummings, 1979), more hospitalization, and more diagnostic tests. For example, in 1985 the five most frequently prescribed drugs were Dyazide, Inderal, Lanoxin, Valium, and Tylenol with codeine (Pierson, 1985). All the drugs cited are prescribed for chronic-stress-related disorders and seldom for acute active infectious disease. A strictly biomedical approach to health care ignores the patient’s potential coping skills, potential social sup-
ports, and personal but modifiable psychophysiological vulnerabilities. Drugs, hospitalization, and surgery alone are not adequate long-term remedies for the somatic symptoms that are the final common pathway for multiple complex psychosocial conflicts that mark complex industrial cultures and physical environments. In the Mumford, Schlesinger, Glass, Patrick, and Cuerdon (1984) review of 58 studies, 85% of the studies reviewed reported a decrease in medical utilization following psychotherapy. The fact that the reduction in medical utilization was most pronounced for inpatient medical costs (presumably more severely ill patients) and for persons over age 55 (who are generally regarded as less able to learn new skills and have more documented physical disease) is a powerful illustration of the inseparability of mind and body in health care. It is becoming clear that the mind–body dichotomy is the major obstacle to a cost-effective health care system.

_Crocks and Quacks_

Meanwhile the cost of health care continues to soar, from 4.6% of the G.N.P. in 1950 to 10.81% in 1986. The new medical-industrial complex (proprietary hospitals, proprietary nursing homes, home care services, laboratory, and other services, etc.) was estimated (Relman, 1980) to have a gross income of approximately 35 to 40 billion dollars in 1980. Dr. Relman, writing in the highly respected _New England Journal of Medicine_, which he edits, points out that physicians, because of “informational inequality,” serve as trustees for their patients’ medical expenditures and hence they should have no “pecuniary association” with the new medical-industrial complex. But in fact, as Dr. Relman points out, it is likely that many practicing physicians are heavily invested in the new health care industry. Third-party reimbursement policies continue to provide the patient and physician with financial incentives for somatic presentations of psychosocial distress. For example, tension headaches or chronic low back pain are more reimbursable diagnoses than anxiety and depression. These insurance reimbursement policies persist in spite of the growing evidence that the provision of psychotherapy reduces the utilization of medical services by at least 20% (Jones & Vischi, 1979) and the more recent evidence that this reduction is most marked for inpatient costs (hospital), and particularly for persons over age 55 (Mumford et al., 1984).

The cognitive and behavioral components of these physically presented disturbances are seldom systematically examined by a primary care physician. There is, in fact, often a tacit conspiracy of silence be-
tween patient and physician regarding psychosocial factors in the patient's illness. The busy medical practitioner often does not have the training, the time, or the inclination to sit down and explore the psychosocial origins or exacerbating factors in the chronic diseases these patients present (Jencks, 1985; Orleans et al., 1985). The physician would rather treat legitimate disease with clear physical findings, or acute medical emergencies (Ingelfinger, 1978). He treats legitimate disease, for which he was specifically trained, effectively, rapidly, and economically. But many of his patients, who are committed to a physical presentation (e.g., pain and insomnia) of psychosocial distress, insist that in spite of the negative physical findings on exam and lab studies, the physician do something medical for them immediately. Often the patient is also resistant to a psychosocial exploration, much less explanation, of his symptoms. The health insurance industry, through its reimbursement policies, reinforces physician and patient for the continued exploration of organic causes with expensive biomedical tests. Health insurance policies are much more likely to pay for expensive radical surgical interventions and extended hospitalizations than for more conservative psychosocial investigations and outpatient psychological therapy (Mumford et al., 1984; Orleans et al., 1985). The physician may be pressured by his patient into prescribing a psychotropic or analgesic medication, or perhaps into ordering a new series of expensive and sometimes even hazardous medical tests, plus hospitalization. Because of errors in medication administration, and exposure to pathogens, hospitalization per se is not without risk (Benson, 1979). The results of the new tests are frequently negative or inconclusive and merely serve to confirm the physician's original impression from history and physical examination (Frazier & Hiatt, 1978; Ingelfinger, 1978; Tancred & Barondess, 1978). The patient is dissatisfied with these new inconclusive or negative diagnostic findings and new drug treatments because of his persisting subjective symptoms. He loses confidence in his physician and in his physician's investigations because no physical cause has been identified. The reality of his complaints is challenged. He may gradually come to regard the physician as an incompetent "quack." The frustrated but conscientious physician, in this atmosphere of failure, frustration, and hostility, may come to retaliate by privately regarding the patient as a "crock" (Barsky & Klerman, 1983). The patient's failure to respond to narrow biomedical investigations and therapy and his resistance to psychosocial investigations (Jencks, 1985; Orleans et al., 1985) leaves the physician feeling ineffective and uncomfortably impotent. Impotence is not a feeling many physicians like (Ingelfinger, 1978), and consequently the recalcitrant patient is labeled a "crock." After this often tacit and unpro-
ductive "crock–quack" interchange, the patient will often move on to another medical practitioner who is again pressured into repeating another set of laboratory test procedures and even escalating to exploratory surgery. As these frustrating and unpleasant transactions between physician and patient continue, the confidence of the patient in the general health care system slowly erodes, further reducing the probability of resolving the patient's problems.

Numerous double-blind studies have shown that patients' confidence in their physicians and other nonspecified therapeutic effects account for at least 33% of positive outcome effects in drug studies of physical illness (Beecher, 1959; Evans, 1974; Shapiro, 1971; Wickramasekera, 1977, 1980). These frustrating, credibility-dissolving and passive-aggressive contacts with physicians reduce the likelihood that the future application of even the most appropriate clinical judgment and active ingredients will easily resolve the patient's physical symptoms (Wickramasekera, 1980, 1985).

The patient's continued commitment to a somatic presentation and explanation of a largely or exclusively functional problem has several consequences. The cost of the health care system is inflated by excessive use of diagnostic tests (Culliton, 1978), and valuable and scarce medical and hospital resources are tied up in costly and ineffective evaluations and interventions (Barsky & Klerman, 1983) of these patients who remain committed to a physical presentation and a medical solution. Many of these patients end up personally demoralized, alienated from their social support systems (because of their chronic complaints), and are eventually chronically managed with tranquilizers, analgesics, and/or sleep medications. Chronic use of these medications can include hazards like tolerance, dependence, and negative physical and mental side effects (Blackwell, 1975; Cummings, 1979). Because of hazardous tests and inappropriate surgery, some develop iatrogenic complications. All of the previously cited conditions can create further psychosocial problems. This appearance of medical treatment that is directed at symptoms may postpone attention to the underlying psychosocial etiology or exacerbating factors.

A number of these patients require a biological medical excuse to talk about psychosocial distress with their medical doctor. If the physician should suggest that the patient see a "shrink" (psychologist or psychiatrist), the probability of resolution is not significantly improved because of the low rate of patient compliance with such referrals. The patient does not believe that he is crazy or that the problem is all "in his head" and, in fact, his symptoms may have subtle and typically unrecognized (by standard medical tests) psychophysiological correlates
(Whatmore & Kohli, 1974). Most of these patients keep biological and psychological matters stringently separate. Their conviction of illness and commitment to a physical presentation of psychosocial distress is expressed in the decision to see a primary care medical doctor. It is estimated that 80% of the visits to emergency rooms in general hospitals are not strictly medical emergencies (Gibson, Bugbee, & Anderson, 1970; Knowles, 1973). Cummings (1977) and others (Mumford et al., 1984) review the evidence that people with emotional and mental disorders overutilize medical services. Franz Ingelfinger (1978) stated that three-quarters of physician-patient contacts are occasioned by complaints that are either self-limited or for which medicine has no specific remedies. However, the skill, tact, and knowledge required to help a patient make the major transition from a biological to a psychological definition and presentation of their problem is often unappreciated by the naive and impatient mental health practitioner. Psychotherapists prefer to see patients who are already inclined to a psychological definition of their problem. But somatic packaging of psychosocial distress is even objectively preferable today. Because when somatically packaged, the symptoms are most reliably and completely reimbursable by insurance companies; additionally, somatic packaging has few or no aversive social, vocational, or political consequences for the patient.

The crux of the problem is that the patient defines his symptoms in strictly biological or physiological terms (a change in tissue structure or function) and is committed to a physical solution to his problem. The patient does not believe that physical symptoms can be the final common pathway for psychosocial stress. Even if there are several years of good rapport between a primary care physician and patient, it is unlikely, for several reasons, that the patient will accept a stress explanation of his symptoms. First, the patient may not currently, subjectively feel under stress; in both the psychological and physiological (e.g., muscle tension, etc.) domains the patient may feel subjectively relaxed except for his or her episodic, unpleasant physical symptoms. This is possible because people can be unaware of or habituate (become subjectively unaware) to chronically and abnormally elevated levels of, for example, muscle tension or elevated blood pressure, until these physiological elevations cross a threshold at which point the patient becomes clinically symptomatic (headache, backache, angina, stroke, myocardial infarction, etc.). This situation is commonly seen with muscle tension headache, vascular headache, and essential hypertension in which silent changes in physiology occur while the patient may be for several months or years subjectively symptom free. Second, the patient may be unable to identify or recognize any current psychological stress in his or
her life and cannot see how past or impending stressors can be causing the present physical symptoms. This inability to recognize current psychological stressors could result from unconscious ego defense mechanisms, simple forgetting, or lack of systematic attention during the typical medical history to the review of stressors. Third, it may seem unlikely to the patient that psychological stress can account for physical symptoms as frequent and intense as those he is currently experiencing. The physician’s word that psychological stress can alter biological functions is viewed skeptically. In fact, as recently as 15 years ago, an illustrious cardiologist stated that he could not see how psychosocial stress could occlude an artery. The crux of the problem is a credibility gap. The patient will not be treatable until he can be redirected credibly and cognitively from a strictly somatic definition of his problem to a psychophysiological definition of his problem.

I propose the following approach to the resolution of the problem. The physician should first do a complete physical investigation of the patient’s physical symptoms, with appropriate medical tests that may previously have been omitted and occasionally even consultation with appropriate medical specialists. The single most important event that needs to occur next is a compelling psychophysiological demonstration that pierces the patient’s skepticism about the mind’s ability to influence somatic functions. This demonstration often requires a psychophysiological laboratory, and the patient should be referred to such a laboratory for a stress profile. The first specific purpose of a stress profile is to identify the nature, the number, the magnitude, and the “delay” in recovery of physiological changes induced in the individual patient by a standardized psychological stressor (e.g., mental arithmetic). The second purpose of the psychophysiological profile (Wickramasekera, 1979, 1983) is to identify any situational factors (major life change, etc.) and psychological features (hypnotic ability, catastrophizing, coping skills, support systems, neuroticism) that are known to be able to amplify, attenuate, or buffer physiological reactivity. Because one of the major problems is that the patient does not recognize that he is currently psychophysically tense (he or she may have psychologically habituated to a chronic, physiologically abnormal, “red alert” state), it is crucial to confront the patient in the laboratory with this fact. This can be done, for example, by confronting the patient with the discrepancy between the patient’s subjective estimate of muscle tension and the actual physiological measure. It is also important to show the patient in the laboratory that an innocuous psychological stressor (e.g., mental arithmetic) can dramatically alter blood flow, tissue temperature, muscle tension, heart rate, blood pressure, etc. This can be accomplished by showing the patient, from resting
baseline to stress, his or her actual strip chart recordings and graphs, or the response meters and counters on the biomedical instruments in the laboratory. Specific methods of doing a compelling psychophysiological demonstration to erode the mind–body dichotomy for various patient types are described in Chapter 7 on the psychophysiological role induction. A psychophysiological report with specific therapy suggestions can bridge the mind–body dichotomy credibility gap for the referring primary care physician. A laboratory report with the graphs should be sent to the referring primary care physician identifying the patient’s most reactive physiological system or systems (“window or windows of vulnerability”) plus a recommendation about what type of low arousal training (which type of biofeedback, hypnosis, relaxation, etc.) and specific psychotherapy (desensitization, marriage counseling, sex therapy, etc.) would be most likely to enable the patient to close and keep closed his windows of physiological vulnerability.

**Why Skills Taught by Psychotherapists May Be Promising**

**Alternatives to Pills for Some Patients**

Several studies have shown that including outpatient psychological services provided by psychotherapists to the health care system reduces the incidence of medical utilization and the length of hospitalization (Cummings, 1977; Mumford et al., 1984). The Kaiser Permanente Health Plan Study (Cummings, 1977) showed a sustained reduction in the use of medical services of 60% when psychological services were available to patients. The cost of psychological services were more than offset by the reduction in medical utilization (Cummings, 1977). These findings have been independently confirmed by Rosen and Wiens (1979) in different health care settings. A recent study (Mumford et al., 1984) reviewed 58 controlled studies of outpatient psychotherapy on subsequent medical care utilization and found that 85% of all these studies found a decrease in medical utilization following psychotherapy. The study found that the largest cost offset was a reduction in inpatient medical care and for older people. The finding is surprising because psychological services that are learning based are believed to be least likely to benefit the old (physically deteriorated) and the more seriously sick (hospitalized patients). The findings are a powerful challenge to the mind–body dichotomy that dominates health care today. The philosophical doctrine of the mind–body dichotomy that underlies the biomedical model is one of the major current obstacles to a cost-effective health care system. Studies like those of Cummings (1977) and Mumford et al. (1984) challenge the biomedical assumption of mind–body dichotomy in health care at a
practical monetary level. Today depression, sustained states of hyperactivity, eroding traditional support systems (family, church, neighborhood), maladaptive personal habits (smoking, gluttony, alcoholism, etc.), and life-styles feed the chronic diseases that kill and cripple most people. Concepts of disease and healing based on a narrow biomedical model, limited to verifiable changes in biological structure or function, lack heuristic value today. Psychosocial events as causes or potentiators of disease are typically excluded by the biomedical model from investigation; the biomedical model limits the scope of its research and intervention to verifiable alterations in biological function and structure induced only by physiochemical agents (germs, physical trauma, drugs, etc.). But there is, in fact, converging evidence that mind (brain) and body work together to protect health. The immune system, for example, is a surveillance system that protects us from disease-causing microorganisms. There is now evidence from three converging directions that the CNS and the endocrine system influence the immune system. First, there is evidence from studying hypothalamic lesions that the CNS influences the immune system. Second, stress research (Ader, 1981; Jemmot & Locke, 1984; Sklar & Anisman, 1981) also demonstrates that psychosocial stressors can reduce the number of lymphocytes, lower the level of interferon, and cause damage to the immunologically important tissue. Third, there is strong evidence for classical or Pavlovian conditioning of the immune system. Ader (1981) has shown that pairing a neutral stimulus (CS) with immunosuppressive drugs (UCS) results in an immunosuppressive response (CR) to the neutral stimulus (e.g., saccharin CS).

Basic and clinical biofeedback research has cogently demonstrated that ANS functions like tissue temperature, blood flow, heart rate, skin temperature, and blood pressure can be brought under voluntary (CNS) control, within biological limits, by at least some people. The mechanism of this control and the issue of placebo effects (nonspecified effects) still requires attention. In spite of the still incomplete resolution of the specific versus unspecified (Stroebel & Glueck, 1973; Wickramasekera, 1977, 1980, 1985) variables issue, the clinical efficacy of biofeedback procedures has forever challenged the security of the biomedical model by questioning two of its crucial assumptions. The practical efficacy of biofeedback has challenged the physiological doctrine of the dichotomy of the voluntary-involuntary nervous system, and the philosophical doctrine of the mind-body dichotomy. It is a curious irony of history that the potency of psychological factors as independent variables was most cogently demonstrated first on physical or biological dependent variables (e.g. EMG levels, vasospasms, skin temperature, medication reduction)
and not on the typical "soft" psychological (Rorschach, MMPI) dependent variables of the psychotherapy research literature.

Previous challenges to the mind-body dichotomy doctrine from hypnosis, autogenic training, yoga, and meditation were ignored. However, Wickramasekera (1977, 1978) has stated that, in contrast, clinical biofeedback will be remembered not so much for any unique clinical efficacy over hypnosis, yoga, psychotherapy and/or autogenic training, but because it packaged the challenge to the mind-body dichotomy in the very language system and using the very tools (modern electronic and medical instruments) of the scientific-biomedical establishment. Further, this credibly packaged challenge has been successfully utilized in the therapy of those clinical disorders (chronic functional stress-related illness) where the biomedical model was therapeutically most inert and most vulnerable. Electronic biofeedback simply provided the rationale, the scientific tools (Wickramasekera, 1977), and the objective confirmatory evidence that motivated and mobilized western man to make consistent efforts to manipulate his physiology in ways he has always been able to do, but was barred from trying by the limitations of his own skeptical belief systems. Biofeedback merely used the methods and technology of science to validate a belief system (it is possible within limits to self-regulate the involuntary nervous system) that previously had been blockaded by skepticism. A skeptical belief system can be as limiting to self-mobilization as the absence of an arm or a leg (Wickramasekera, 1979).

Hypnosis is a technique without equal for creating belief and altering perception in very selective ways. For those people (approximately 15%) in the general population who have good hypnotic ability and who are motivated to use it, biofeedback training will simply slow down the rate of psychophysiological skill acquisition; instead, for those with good hypnotic ability and motivation, verbal instructions and a comfortable chair is enough.

Recent advances in the assessment of hypnotic susceptibility in the laboratory and clinical situation have significantly increased the practical utility of hypnotic procedures in the therapy of chronic stress. Hypnotic susceptibility has also stimulated basic research on the psychophysiological mechanisms underlying the transduction of psychological events into chemical and electrical changes associated with learning and conditioning. It is becoming clear that the brain transduces sensory signals into systems of meaning that can have biological consequences for disease or health. The study of people of high-hypnotic ability may provide the purest culture in which to learn how sensory signals are changed into meanings that have physiological consequences. Progress
in defining the parameters of hypnotic behavior (Barber, 1969; Hilgard, 1965; Spanos & Barber, 1974) have provided a reliable set of experimentally established facts and principles on which clinical practices can be based. A recent model of psychophysiological disorders (Wickramasekera, 1979, 1983) implicates superior and very low hypnotic susceptibility as major risk factors in the development of psychophysiological disorders.

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