PART I

FOUNDATIONS

Theoretical Models in Health Psychology and the Model for Integrating Medicine and Psychology

BRET A. BOYER

HISTORY AND DEVELOPMENT OF HEALTH PSYCHOLOGY

Although health psychology is a rather recent focus of behavioral science, interest in the interplay between humans' psychological and physical well-being dates back throughout history and spans many cultures, with written discussion as far back as the fourth century BC (Hippocrates, trans. 1923). Of particular historical significance was the conceptual separation of the *mind* from the *body* by René Descartes in the seventeenth century (Cummings, O'Donohue, Hayes, & Follette, 2001). However, regarding health psychology as a subspecialty of psychology and medicine, it is useful to revisit its development over the past 30 years. If we start slightly earlier in the historical timeline, early attention was paid to the effects of the psyche upon physical functioning and physical symptoms as early as Stanley Hall (1904), who emphasized the role of psychology in physical healing. William James (1922) discussed the role of people's individual processes in approaching work and life stresses, an idea that foreshadowed the current conceptualization of "coping" (Lazarus & Folkman, 1984). Psychoanalytic attention to physical health generated the terms *psychosomatic* and *psychosomatic medicine,* indicating that the "psyche," or mind, interacted with the "soma," or body. Although not specifically determined by this term, *psychosomatic* acquired a connotation that implied a directionality of influence. That is, the *psyche* affected the *soma,* as in somatoform disorders (*DSM-IV-TR,* 2000). Medical symptoms were conceived of as physical symptoms representing the expression of psychological distress, albeit unintentional and unconscious (Freud, 1916–1917, trans. Strachey, 2000). Indeed, the individual remained partly or wholly unconscious of the psychological etiology that created the physical symptoms. During the early twentieth century, psychodynamic investigations sought to identify particular personality organizations that would be prone to the development of physical disease (Alexander, 1950; Dunbar, 1943). While some research has continued on the "cancer-prone personality" (Eysenck, 2000; Katz & Epstein, 2005), for example, research to support it as an etiological factor in the disease is not very convincing (Amelang, Schmidt-Rathjens, &

Matthews, 1996; O'Leary, 2006). Most modern conceptualizations have changed; now, they investigate individual factors such as the impact of genetics or lifestyle on health (e.g., tendency to smoke cigarettes, drink alcohol excessively, or eat a particular diet), and stress, or coping dispositions that put individuals at risk for a poorer adjustment once health changes occur. After a reduction in professional investigation of the topic during the mid-twentieth century, focus on the interaction of psychological and physical health was renewed by findings that humans could intentionally control physiological activity that was previously considered involuntary (Miller, 1969). These findings became the foundation for the creation of *biofeedback* (Miller, 1978).

The consolidated rebirth of modern health psychology and behavioral medicine occurred in the 1970s. After renewed interest in the 1960s and 1970s, Gary Schwartz and Stephen Weiss organized a meeting of scientists interested in defining *behavioral medicine* in 1977, and Neal Miller chaired a subsequent meeting to organize clinical and research interests relating to these topics, resulting in a meeting of interested professionals at the National Academy of Science's Institute of Medicine. These efforts to define behavioral medicine as a field of clinical study and treatment as well as a professional endeavor yielded several articles summarizing these defining events and concepts (Schwartz & Weiss, 1977, 1978). Behavioral medicine was defined as "the field concerned with the development of behavioral science knowledge and techniques relevant to the understanding of physical health and illness and the application of this knowledge and techniques to prevention, diagnosis, treatment, and rehabilitation. Psychosis, neurosis, and substance abuse are included only insofar as they contribute to physical disorders as an end point." (Schwartz & Weiss, 1978, p. 3). The Society of Behavioral Medicine was subsequently formed, first within the confines of the Association for the Advancement of Behavior Therapy, then as a separate and independent organization (Weiss, 2003, as interviewed in Albright, 2003). This was followed by disagreement regarding the most appropriate terminology for this pursuit of study and treatment.

Health Psychology has "made substantial contributions to the understanding of healthy behaviors and to the comprehension of the myriad factors that undermine health and often lead to illness" (Taylor, p. 40). The term *Health* Psychology has been defined as "the aggregate of the specific educational, scientific, and professional contributions of the discipline of psychology to the promotion and maintenance of health, the prevention and treatment of illness, the identification of etiologic and diagnostic correlates of health and illness and related dysfunctions, and the analysis and improvement of the health care system and health policy." (Matarazzo, 1982, p. 4). This latter definition has been criticized for being too broad and encompassing, and sub-definitions will be needed to characterize the specialties regarding particular domains of academic, clinical, and policy endeavors (Marks, Sykes, & McKinley, 2003). Other definitions, however, have emphasized four differing approaches within health psychology: a clinical focus, a public health focus, a community focus, and the approach of critical health psychology (Marks, Murray, Evans, & Willig, 2000).

To briefly summarize the consensus, or lack of consensus, about these terms, we here present all of the titles currently used in the professional context:

The term *behavioral medicine* is preferred by those who view this context as growing from the field of behavioral science or applied behavior analysis; however, this implied theoretical bias has engendered some professionals to use the term *health psychology*. Those who favor the term health psychology perceive it as depicting the application of psychological principles to the study and treatment of physical health without evoking the theoretical position of behaviorism. Coming full circle, however,

those who favor the term behavioral medicine feel that this implies a nonpharmaco-logical/nonsurgical focus on physical health by any discipline of study (including such disciplines as medicine, nursing, physical therapy, occupational therapy, nutrition, exercise physiology, epidemiology, public health, and social work), and not just psychology (Weiss, 2003, as interviewed in Albright, 2003).

In turn, some clinicians and theorists have criticized health psychology and behavioral medicine regarding their inattention to the larger social context and social factors. Family therapists communicated that behavioral medicine and health psychology pursuits were successful in contributing the "psycho" to the "bio," as dictated by the biopsychosocial model, but were failing to adequately address the "socio" aspect of the biopsychosocial model. This concern generated the term *medical family therapy* (Doherty, McDaniel, & Hepworth, 1994; Rolland, 1987), and is consistent with other models within pediatric psychology, such as the social ecological model of health (Bronfenbrenner, 1975; Kazak, 1986), which emphasizes the impact of illness on the social circles surrounding the patient as well as the impact of social family/support on patient adjustment. In the interest of fairness, however, we note that significant attention is paid within the health psychology and behavioral medicine literature to social support factors, prevention issues in at-risk populations, and sociopolitical factors (Marks et al., 2000).

For the purpose of clarity throughout this book, we will allow the terms *health psychology* and *behavioral medicine* to be rather parallel and synonymous, and that these will include the study and treatment of environmental and social factors, as emphasized by medical family therapy. We concede that there exist different emphases among the use of these terms, but here we emphasize their commonalities: the applications of psychological, family, social, spiritual, and other nonpharmacological factors in the role of physical health, and we use these terms with emphasis on their shared definitions and goals rather than on their differences. It is also important to note that the field of health psychology investigates the role of psychosocial factors in the development of disease, the stressors posed by disease for subsequent psychological adjustment, and the ongoing reciprocal influence of physical and psychosocial factors over time, consistent with the biopsychosocial model.

THE BIOPSYCHOSOCIAL MODEL

The traditional biological model of medicine is primarily focused on the assessment and treatment of pathology in biological structure and function, or pathophysiology (Van Egeren & Striepe, 1998). In response, Engel (1977) criticized the over-focus of medicine on biological factors, and proposed the *biopsychosocial model.* Because the biopsychosocial model incorporates multifactorial explanations for health and bi-directional or reciprocal influences between these factors, and allows for complex direct and indirect effects of biological, psychological, and social factors on health outcomes, it has become the predominant model within health psychology (Belar & Deardorff, 1995; Smith & Nicassio, 1995). It is also progressively becoming accepted among allopathic and osteopathic medical training, nursing, and other therapies.

MODELS OF THE INTERACTION OF PSYCHOSOCIAL AND PHYSICAL FACTORS

As the biopsychosocial model has become widely accepted as an overarching model with great utility for engendering more comprehensive and effective health care ser-

vices, multiple models have been created to conceptualize the exact manner in which these biopsychosocial factors interrelate. Although we will not here review all models, we will briefly overview the main ones and present a new model for assessment and treatment planning. Some models have been characterized as more categorical, suggesting that different diseases pose different stressors, and that the difficulties the patient and his or her family face will be predictable by particular aspects of the disease state (Rolland, 1987). In addition, the *social ecological model* (Bronfenbrenner, 1977; Kazak, 1986) emphasizes that the health condition affects individuals in the patient's social structure, including family, extended family, friends, community, and society in general, as well as the effect of these social circles on the support and adjustment of the patient directly experiencing the disease. Other models have emphasized that, regardless of the specific disease state, there are individual-specific or family-specific factors that impact the individual's reaction and adjustment to the diagnosis and treatment of the disease. Among these are the *disability-stress-coping model* (Wallander & Varni, 1992), and the *transactional stress and coping model* (Thompson, Gustafson, Hamlett, & Spock, 1992). These models have been characterized as *risk and resistance* models, or *integrative theoretical models* (Wallander, Thompson, & Alriksson-Schmidt, 2003). An additional model, similar to the risk and resistance models, is the *resiliency model of family stress, adjustment, and adaptation* (McCubbin & McCubbin, 1993), which emphasizes that chronic health conditions demand ongoing adjustment over time, and that a patient's and family's adjustment is affected by changes in symptomatology, representing a process rather than a single adaptation.

We will then present a new model, the Model for Integrating Medicine and Psychology (MI-MAP), which integrates the categorical and risk-resistance models into a guide for sequential assessment and treatment planning regarding comprehensive health psychology factors.

Categorical Models

Much of medical training involves the description of symptom clusters as diagnoses. The dangerous implication that may result, of categorically diagnostic conceptualizations, is that "everyone with this diagnosis is experiencing the same symptoms and etiological factors," and the diagnosis informs the clinician about the individual's or family's experience. The application of the biopsychosocial model has great utility to debunk the all-too-common "all cases of [diagnosis] are the same" approach to clinical understanding.

In an attempt to understand the experience and challenges posed to those facing physical health problems, Rolland (1987) developed the *psychosocial typology model*, theorizing that different diseases would have somewhat predictable differences in the stresses that they will pose to patients and their families. The descriptive characteristics of different diseases include *onset, course, outcome,* and *incapacitation*. Rolland categorized the onset of illnesses as either *acute* or *gradual* in the patient's development of symptoms. The course of the disease was categorized as either *constant, progressive,* or *relapsing/episodic*. As such, Rolland made the distinction between disease states that were either constantly symptomatic but stable in severity (constant), constant in symptomatology but steadily worsening in severity (progressive), or characterized by periods of improvement or remission and periods of worsening or relapsing of symptoms (relapsing/episodic). Rolland (1987) defined three categories of outcome: fatal, life shortening, and nonfatal. Incapacitation was defined as the degree of impairment

Table 1.1
Risk and Resistance Factors to Predict Adjustment to Health Conditions

Risk Factors	Resistance Factors
Disease factors:	*Intrapersonal factors:*
Specific diagnosis	Temperament
Severity of condition	Competencies
Visibility of condition	Motivation for self-management
Brain involvement (i.e., cognitive impairment)	Problem-solving skills
Impaired functional independence	*Social-Ecological factors:*
	Family environment
	Social support
	Parental (or other family members') adjustment
	Resources in community/culture
Psychosocial stressors:	*Stress processing:*
Disability-related problems	Appraisal
Major life events	Coping
Daily hassles	

Source: Adapted from Wallander and Varni (1992).

the disease induced in either physical capabilities, cognitive capabilities, or motor functioning. By considering these factors as dimensions on which diseases can vary, Rolland offered a schemata to characterize the types of experience and stresses likely to accompany particular illnesses. These differences will be more fully discussed in the Disease Factors section of the Model for Integrating Medicine and Psychology (MI-MAP).

Risk-Resistance Models

The risk-resistance models, considered integrative theoretical models (Wallander, Thompson, & Alriksson-Schmidt, 2003), organize the factors affecting adjustment into factors that pose risk for poorer adjustment (risk factors), and factors that serve as resources that benefit adjustment to the risk factors (resistance factors). Wallander and Varni's (1992) disability-stress-coping model of adjustment, for example, considers several variables to be risk and resistance factors (see Table 1.1).

MODEL FOR INTEGRATING MEDICINE AND PSYCHOLOGY

The Model for Integrating Medicine and Psychology (MI-MAP) was developed over 10 years of training physicians both about behavioral health and psychological factors and training psychologists about physical health and pathophysiology. Just as models such as the categorical and risk-resistance models have hypothesized how all the biopsychosocial factors may relate to one another to predict patient and family adjustment, MI-MAP attempts to utilize these models' collective factors and predictions to achieve two related goals: (1) to combine the categorical and individual aspects of other models and create a more integrated depiction of the factors to be assessed, and (2) to organize a sequential process by which the clinician can perform a comprehensive yet expedient inquiry regarding symptomatology relevant to the biopsychosocial model. In doing so, MI-MAP serves as a guide to answer the question, "How do

I clinically employ the concepts of the biopsychosocial model, and apply these concepts consistently in the process of clinical evaluation, treatment planning, and clinical intervention?"

The agenda for developing the MI-MAP stemmed from several observations in the clinical training setting. Physicians and nurses often struggle with the psychosocial components of biopsychosocial practice. In the medical setting, patients present with their physical symptomatology, and physicians often over-focus on the assessment of pathophysiological etiology. At least six factors may contribute to this phenomenon. It is important for health psychologists, nurses, and physicians to be aware of these factors, since health psychologists and medical educators may be crucial in consulting to overcome these barriers.

1. Despite the expanding acceptance of the biopsychosocial model in medical training, allopathic and osteopathic medical training continues to be primarily a biological science. As such, less training is geared to behavioral health than the assessment and intervention with pathophysiology. As a result, many physicians and nurses feel less prepared to assess and respond to the psychosocial aspects of biopsychosocial care.

2. The acuity of risk related to certain pathophysiological dysfunction requires the immediate "work-up" and "rule-out" of potentially lethal disorders. For example, for a patient accessing emergency services for shortness of breath and chest pain, myocardial infarction (heart attack) and pulmonary embolism (a blood clot occluding vessels in the lungs) can be acutely fatal, and requires immediate assessment. A panic attack, however, is not an acutely fatal condition, and will therefore be lower in priority on the physician's differential diagnosis. Due to this prioritizing of etiology by lethality, however, many clinicians conclude their assessment after ruling out the potentially lethal medical conditions before assessing the psychosocial phenomena, which may be seen by critical care clinicians as either superfluous or outside the role of acute critical care. As a result, individuals experiencing panic disorder often do not get diagnosed in the critical care context and continue to seek and utilize irrelevant and unnecessary medical resources because diagnosis and treatment of panic disorder are not offered (Grudzinski, 2001; Rief, Martin, Klaiberg, & Brähler, 2005).

3. The very real issue of time pressures in the scheduling of physicians' clinical practice creates further barriers to the comprehensive assessment of biopsychosocial issues, which are not primary to the traditional history and physical examination of the patient. Most traditional history and physical examinations will inquire about smoking and alcohol consumption as social history factors, and will inquire about little else.

4. In addition, although physicians may have less experience, less training, and lack adequate time regarding assessment of psychosocial factors, they may also perceive patients as wanting to avoid these disclosures (Brody et al., 1995), and have less familiarity with the diagnostic criteria for psychological diagnoses than for physical disease states. In contrast, empirical research has documented that major depressive disorders are present in about 5 to 40% of patients seeking services in the outpatient primary care setting (Niles, Mori, Lambert, & Wolf, 2005), and that 66% of patients in outpatient ambulatory care feel that physician attention to their emotional needs is "somewhat" to "extremely" important (Brody, Khaliq, & Thompson, 1997).

5. Even if a medical practitioner is (a) well trained regarding psychosocial factors, (b) facile yet comprehensive regarding careful assessment of more-to-less acutely lethal conditions, (c) expedient regarding use of practice time, and (d) aware of the startling prevalence of psychological disorders among those presenting for medical care, they may be emotionally uncomfortable assessing these clinical components.

6. More debilitating may be the phenomenon that, even if a physician or nurse has mastered the skills to overcome these barriers, they may feel they have a paucity of clinical resources to provide intervention for the psychosocial aspects of disease management.

Paralleling the discipline-specific process for physicians and nurses, clinical psychologists are often ill-equipped regarding information about physical symptomatology and pathophysiology. Multiple factors contribute to psychologists' discomfort with pathophysiology, similar to that experienced by physicians regarding psychosocial factors.

1. Many psychologists have not studied physiology, may have actively avoided biological focus in their education, and may identify this domain of study to be beyond the scope of their discipline.

2. Psychologists, as well as many other professionals, may have internalized the mind/body duality, and truly do not understand the role that factors ascribed to each of these domains play in affecting comprehensive health.

3. Some psychologists may actually be intimidated by the biological sciences and the medical setting, and may have low perceived self-efficacy about understanding physical sciences.

4. Some psychologists may feel uncomfortable with the "blood and guts" aspects of medical sciences.

5. Some psychologists may be uncertain about the boundaries of their legitimate professional expertise, and fear being accused of practicing medicine without appropriate training. Indeed, much care must be paid to the legal and ethical issues, as well as the clinical issues surrounding appropriate interdisciplinary collaboration.

To the degree that health psychologists often function in an explicitly medical setting, it appears appropriate to orient the psychological practitioner to the physical health starting point of patients' presentation in medical services. Therefore, the rationale for MI-MAP grew from the purpose of making attention to psychosocial factors *easier* yet *more comprehensive* for physicians, nurses, health psychologists, generalist psychologists, and social workers, and starting from the patients' (as clientele) starting point: the presenting complaint of physical symptomatology.

For these reasons, the MI-MAP begins with factors related to the *physical condition (disease factors)*, proceeds sequentially to factors related to the *medical treatment regimen (regimen factors)*, then proceeds to the *individual factors* that will interact with the demands of the condition and its treatment (*individual factors*), and finally to the consideration of *comorbid psychopathology* (see Figure 1.1). This offers clinicians of any discipline an organizational sequence by which to investigate the health condition and treatment factors from a stress and coping perspective, then proceed to the individual factors that will determine how the patient will adapt to these health stresses and coping demands.
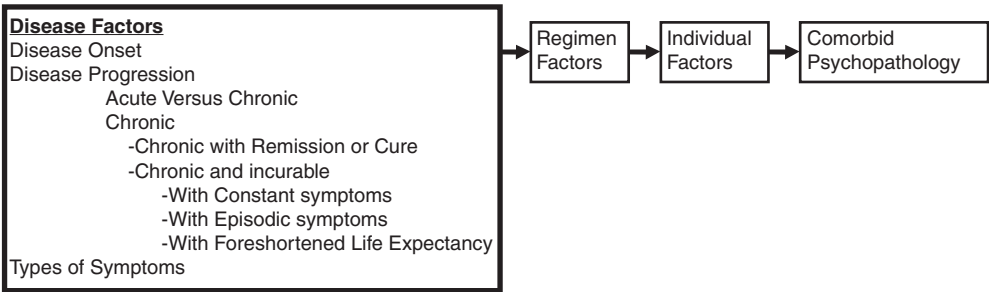
| Disease Factors | → | Regimen Factors | → | Individual Factors | → | Comorbid Psychopathology |

Figure 1.1 Model for Integrating Medicine and Psychology Assessment Sequence

DISEASE FACTORS

We could start with the dictum, "All diseases are not created equal!" Some health conditions or disease states are more homogeneous than others, from one individual's case to the next, and others are more heterogeneous. Similarly, one individual may process and cope with these disease factors differently than others. We can, however, assess particular factors that differentiate the onset and progression of each disease or health condition. If we conceptualize these factors as identifiable stresses posed by each specific health condition, and the demands that this health condition poses for an individual's or family's coping, we can characterize these stress and coping situations from one disease to the next. This process, in most respects, utilizes many elements of Rolland's psychosocial typology model (1987). The following section (see Figure 1.2) highlights several factors that can be used to conceptualize differences among different diseases and health conditions.

DISEASE ONSET

"Is the onset of the disease symptomatic or not?" Some diseases may begin with clear symptoms that are discernable by the patient. In contrast, other disease processes may begin without any noticeable symptoms. This distinction is important for several reasons. First, the presence of symptoms usually prompts the patient to seek medical services, and serves as a motivation to alleviate these symptoms. For this reason, conditions with a symptomatic onset are likely to be diagnosed sooner, and patients are likely to feel that treatment is useful to alleviate discomfort and to feel better. Health conditions that produce no discernable symptoms, however, may start and begin to progress before the disease is detected. As such, the diseases with an asymptomatic onset may go undiagnosed until the disease has advanced to a more serious stage of disease progression. In addition, health conditions with no perceptible or discomforting symptoms may engender a patient's perception that he or she need not pursue treatment, even after the disease is diagnosed. At the very least, when symptoms are absent, there is less impetus to continue treatment activities (e.g., take medication,

Disease Factors
Disease Onset
Disease Progression
      Acute Versus Chronic
      Chronic
         -Chronic with Remission or Cure
         -Chronic and incurable
            -With Constant symptoms
            -With Episodic symptoms
            -With Foreshortened Life Expectancy
Types of Symptoms

→ Regimen Factors → Individual Factors → Comorbid Psychopathology

Figure 1.2 Disease Factors

avoid particular foodstuffs) in order to relieve symptoms. In operant behavioral terms, the symptoms serve as discriminative stimuli to seek and continue treatment, and the relief of these symptoms provides negative reinforcement that promotes the continuation and consistency of treatment. For symptomatic disease onset, as discussed by Rolland (1987), the rate in which symptoms develop is also important. Acute development of symptoms may be experienced as more threatening than those that develop gradually over an extended time.

"Is the onset of the disease traumatic or not?" Another important consideration regarding disease onset is whether the onset involves trauma. There are at least two ways in which the disease onset may be experienced as traumatic. First, the cause of the health condition may be a traumatic event. Examples of this may include burns (DiFede and Barocas, 1999; DuHamel, Difede, Foley, & Greenleaf, 2002; Van Loey, Maas, Faber, & Taal, 2003; Stoddard et al., 2006), spinal cord injuries (see Chapter 10), or traumatic amputations (Cheung, Alvaro, & Colotla, 2003; Cavanagh, Shin, Karamouz, & Rauch, 2006). In these examples, the event causing the injury may induce posttraumatic stress symptoms, even if the person had not sustained the injury. The injury, however, may increase risk for the development of posttraumatic stress. Second, the disease onset may involve symptoms or diagnostic information that many individuals perceive to be potentially life-threatening, or treatment side effects that are aversive and stressful, such as myocardial infarction (heart attack; see Chapter 7) or cancer (see Chapter 6). Such diagnoses may pose risk for posttraumatic stress symptoms related to the diagnosis and/or treatment of the disease. It is also important to consider that public appreciation or knowledge about diseases and disease-related threat may be different than the current medical consensus about prognosis. For example, while a stage-one presentation of many cancers may be considered less risky and more likely to result in a cure than Hepatitis C, most individuals without medical training may be more frightened by a cancer diagnosis than by the diagnosis of hepatitis. For this reason, the clinician must consider the patient's and the patient's family's appraisal of the disease-relevant threat.

Disease Progression

The next consideration is the disease progression, or what Rolland (1987) referred to as *course of disease.* The way in which a particular health condition persists over time, or changes over time, will affect the course of the stresses and demand for adaptation by the patient and his or her family. Although the exact course of disease progression may be uncertain, there is often some predictability to how specific diseases will progress, and how they will respond to particular treatments. Here is a categorization of the factors that may be predictable regarding disease progression:

Chronicity: "Is this health condition acute or chronic?" In many instances, it may be predictable whether the health condition will be acute or chronic. For acute conditions, the stress is more short-term and the demand to cope with these stressors will be time limited. In contrast, chronic conditions will pose stressors and the demand to cope with these stressors over an extended period of time. While acute conditions may affect the patient for a shorter time, the intensity of the symptoms, or risk that the patient perceives from the symptoms may still be high. On the other hand, chronic conditions may have lower severity at particular stages of disease progression, but the demand to cope with these symptoms will persist for an extended period. In the clinical setting, providers will often hear very different comments from patients who are frus-

trated with their health problems. Individuals with acute conditions often remark that "I can't wait until this is over," or "I don't know if I can get through this." Those faced with chronic conditions often make comments such as "I can't keep this up," "I am getting so weary of all this," "I used to be on top of this, but now I'm losing my patience," "I need a vacation from this disease," or "I'm worn out!"

Furthermore, the disease progression for each chronic condition will not be the same. Several categorical types of chronic disease progression are overviewed in the following sections.

Pattern of disease progression: "How will this disease change over time?" The progression of a specific disease may depend on many factors, such as the particular pathophysiology of each case, an individual's response to treatment, the patient's success or difficulty with self-management aspects of treatment, availability of particular treatments, presence of other comorbid health problems, or exposure to and coping with environmental stressors. However, there may be some predictability as to whether and how particular health conditions will progress. Several categories are listed in the following sections.

Chronic Conditions That Will Remit or Be Cured   Many health conditions may pose long-term stressors, challenges, and demands for an individual or family to cope with, but may either remit or be cured by appropriate treatment. Among these are certain cancers, or cancers at particular stages at the time of diagnosis. Despite the fact that 90.5% of cases of Acute Lymphocytic Leukemia (ALL) in children 5 years old or younger will attain remission and never recur, constituting a cure, the process of treatment toward that cure consists of 3 years of intense and stressful endeavors (Leukemia & Lymphoma Society, 2007). Many cases of idiopathic partial epilepsy in children will spontaneously remit as children grow older (Berg et al., 2004; Shinnar & Pellock, 2002). Such diseases pose lengthy and stressful demands to adjust, despite the expectation of eventual cure or remission. In addition, even when cure rates are extremely high, the uncertainty of whether each individual will be in the "high percent that get cured" or the "unlucky few who do not" still exists. This, however, is different from diseases that offer no hope of eventual cure or permanent remission.

Chronic Incurable Conditions   For many common diseases, there is no known cure and/or no impending progress toward a cure. In these cases, the stresses pose an ongoing demand for self-management. In other words, the goal of treatment is the ongoing management of symptoms rather than the elimination of the disease. Such conditions present individuals and families with a difficult paradox: *If I accept the need to manage the disease/symptoms on an ongoing basis, I will not suffer the discomfort and limitations of those symptoms, and the disease will cease to intrude on my quality of life. However, if I try to ignore the disease and its symptoms, the symptoms will persist and impair my functioning and comfort*. As such, chronic, ongoing diseases constitute a long-term, persisting stress and demand for coping.

The actual disease progression, or the pattern of symptoms over time and potential for progression of symptoms over time, varies among diseases. In order to understand the stressors and coping demands related to each pattern of disease progression, we need to consider the various ways in which symptoms and illness express themselves over time for different health conditions (Rolland, 1987). Examples are given here for each pattern of disease progression.

Chronic and Constant Conditions   Some diseases present the patient, and the patient's family, with continuous symptoms that vary very little over time. The steady stress of the constant symptoms poses the patient with a constant need for self-treatment, as discussed in the Regimen Factors section. Examples of such conditions include diabetes, hypertension, or some types of chronic pain. One could summarize, for example, that if someone coped well with their diabetes or hypertension, or optimally managed their diabetes or hypertension about 60% of the time, they were not coping with or managing well their disease, due to the constancy of the disease state.

The constant and continuous need to cope with symptoms and exert self-management activities to the self-treatment of such diseases results in fatigue or burnout, frustration at the need for such consistency, and results in patients reporting experiences such as:

> I used to be doing such a great job. I'm so tired of keeping all this up, and I need a break. I wish I could get a vacation from all this. I don't know what's wrong with me that I can't do as good of a job as I used to with this.

Patients with chronic and constant conditions report feeling weary and beleaguered. In contrast, individuals with chronic and episodic conditions struggle with the repetitive and recurrent nature of an ever-changing level of symptoms.

Chronic and Episodic Conditions   Many conditions are characterized by periodic, alternately worsening and reduction of symptoms over time. Individuals experiencing such conditions often communicate:

> I never know what to expect. I can't plan anything. Every time I think things are better, this comes back again and again. I feel like I should be able to prevent these episodes, but they keep recurring. Every time I plan something, I don't know if the symptoms are going to flare up and ruin my plans.

Furthermore, the exact pattern of recurrent, episodic conditions vary, as described next.

Episodic conditions with full remission of symptoms between episodes. Some health conditions create episodes of exacerbated symptoms, and these symptoms may entirely remit between these episodes of exacerbation. An example of this is, for many patients, sickle cell disease. Some patients experience no pain or symptoms over time, except during discrete sickle-cell crises. Even in the absence of symptoms, however, patients may need to keep well hydrated and be watchful for fever, and bear the ongoing threat of possible crises. As such, the manner by which patients cope with this abstract threat during remission periods will have great impact on overall adjustment (See discussion in Chapter 16).

Episodic conditions with reduction (but not full remission) of symptoms between episodes. More common than full remission of symptoms between exacerbations is the lessening of symptom severity without full remission of symptoms between episodes. Many individuals experience presentations of asthma that fit this description. Irritable bowel syndrome may exhibit this pattern for some individuals. In these conditions, some very mild and unobtrusive symptoms may persist at baseline, but periodically exacerbate to much more severe level of symptoms. As discussed in the Regimen Factors section, this presents patients with the experience that, if they do a more consis-

tent and careful job of managing the baseline symptoms, they may avert the development of an episode of extreme symptoms.

Despite the persistence of a lower severity of symptoms during between-episode baselines, the patient continues to experience the frustration of the recurrent fluctuation of symptoms.

Episodic conditions with a worsening of baseline symptoms between each subsequent episode. Some diseases tend to progress in a pattern characterized by an episodic worsening, and continuation at a new plateau of a worsened between-episode baseline. Among examples of this are chronic obstructive pulmonary disorders (COPD, such as emphysema), or multiple sclerosis (MS). For individuals experiencing these types of conditions, the pattern becomes rather apparent over time. That is, patients soon realize that, when they experience an episode of exacerbation and get admitted to the hospital, they will not return to their previous between-episode baseline upon returning home. Patients begin to understand that each serious episode may constitute a progression to a worsened ongoing health status.

Patients with these types of conditions report:

> Every time I go in the hospital, everything gets worse. Each exacerbation is another nail in my coffin. I have to prevent these episodes, because each one takes years off my life and renders me less functional than before.

Individuals with such conditions begin to experience the pressure that each exacerbation permanently worsens their condition and functioning. Even if they are better after discharge from the hospital after the exacerbation than when they were admitted, they are worse than the baseline before they were admitted for the exacerbation of symptoms. Such experiences may foster a sense of impending doom and desperation.

Episodic conditions with a foreshortened life expectancy. Many chronic health conditions are accompanied, even at the point of diagnosis, with the threat of a foreshortened lifespan. Among such conditions are cystic fibrosis, HIV infection, or cirrhosis. Such conditions may engender desperation and hopelessness and thereby decrease the quality of life for individuals and their families.

Type of Symptoms

Regardless of the pattern of, or progression of, symptoms over time, providers also need to consider the type of symptoms. That is, to what degree do these symptoms impact functional independence? To what degree do they interfere with quality of life? Some important differences in types of symptoms involve the following questions. Are the symptoms of the disorder visible or not? For example, cerebral palsy may be very visible to others in a social setting, as observers will notice a difference in an individual's gait and motor movements, whereas those who are HIV positive may not look any different to anyone else in a social context. Does the condition involve pain? Pain is an intensely intrusive symptom, especially when chronic or severe (see Chapter 15). Are the symptoms contagious, or even perceived by others to be contagious? Are the symptoms, or the presence of the condition itself, stigmatizing? For instance, there is evidence that those with Hepatitis C, a chronic liver disease, experience higher depression and anxiety, poorer quality of life, and more difficulty coping when they feel stigmatized by others in social contexts (Zickmund et al., 2003).

Many of these factors are included in the risk and resistance models (Wallander, Thompson, & Alriksson-Schmidt, 2003).

Figure 1.3 Regimen Factors

REGIMEN FACTORS

In the same manner that disease factors may vary yet offer some predictability, the range of treatments available for specific diseases is usually known at the point of diagnosis. By considering the exact treatment regimen that will be used to treat each patient's condition, providers can anticipate the types of stressors and difficulties that may ensue. Many of the regimen factors involve the degree to which patients and their families can tolerate the treatment, and the degree to which they can and will participate actively in the treatment process. An overview of factors that are important to consider is displayed in Figure 1.3.

Throughout the 1980s, many professionals took issue with the idea of *compliance,* which implied that patients were following authoritarian dictates of their physicians. The reconceptualization of medical service provision, from a paternalistic practice (in which the knowledgeable doctor instructs the patient in the treatment process) to a collaborative practice (in which the doctor and patient collaborate in defining, prioritizing, and executing the treatment plan), led to a reconceptualization of *noncompliance.* The patient's participation was no longer conceptualized as the patient's complying with the doctor's wisdom, but as an active collaboration with the physician toward treatment planning and medical outcomes. Regarding diabetes, Schilling, Grey, and Knafl (2002) defined *self-management* as an active, proactive patient-driven *process* that involves specific *activities* toward disease management *goals.* As health professionals conceptualize patients' follow-through on medical activities, it appears useful to conceptualize these as successes and/or failures regarding self-management of their disease process. Health professionals of all disciplines need to resist the temptation to conceive of noncompliance or nonadherence as a condition that "a patient *has.*" More instrumentally useful is the investigation of the factors that facilitate a patient's *success with self-management* or follow-through with the medical regimen, and factors that increase a patient's *difficulties or failures with self-management* or follow-through with the medical regimen. By identifying the factors that contribute to either success or difficulties with self-management, the medical team can identify the means to help a patient, or the patient's family, succeed with the demands of that particular treatment regimen.

Following are factors that have been identified in empirical studies of adherence that explain elements of medical treatment regimens that predict difficulty in self-management or follow-through by patients and their families.

Complexity

It makes intuitive sense that a more simple treatment will be easier to manage than a more complex regimen. Complexity, however, can manifest in several different ways.

First, the number of treatment-related behaviors may be more or less (e.g., taking more rather than fewer pills). Second, the scheduling and/or timing of particular treatment-related behaviors may be more or less complex (e.g., taking pills at four different times a day, rather than all pills at one or two times per day). These two factors may often interact. One example is that it is easier to take azithromycin once a day for 5 days than it is to successfully take Amoxicillin three times a day for 10 days. Another example is the multimedication, multitime schedule for many regimens of highly active anti-retroviral therapies for HIV/AIDS. Coordinating the multiple drugs, with different dosages, and different timing for medication-taking can be far more difficult than simpler plans (Dilorio, McDonnell, McCarty, & Yeager, 2006).

Intrusiveness

Another important consideration involves the intrusiveness of the disease or the treatment to manage the disease. Put simply, how much do the symptoms or the activities necessary to manage the disease get in the way of desired life pursuits? Investigations by Gerald Devins and colleagues suggest that *intrusiveness,* as a construct, is stable across the 15 diagnoses that they evaluated (i.e., rheumatoid arthritis, osteoarthritis, systemic lupus erythematosus, multiple sclerosis, end-stage renal disease, kidney transplantation, heart/liver/lung transplantation, and insomnia), and that both exploratory and confirmatory factor analysis identified three underlying factors: (1) Relationships and personal development, (2) intimacy, and (3) instrumental life domains (Devins et al., 2001). It appears that, for a varied patient population, the health condition and treatment regimen may interfere with interpersonal and intimate life activities, as well as the accomplishment in activities of daily living. When assessing how an individual or family may respond to an illness, it may be imperative to consider both the demands of the particular self-management process for that particular health condition, as well as consider the lifestyle and life activities that may become disrupted for this particular individual and family.

Accessibility

The issue of accessibility of treatment is a crucial consideration. Accessibility may represent a geographical barrier to treatment. If an individual resides near a major metropolitan area, especially one with many university medical schools such as Boston, New York, Philadelphia, Chicago or Los Angeles, there may be many more treatment and service provider options available than if a patient lives in a remote rural area. Accessibility also dovetails with the issue of intrusiveness, when the demands of treatment require attendance to long and involved office visits. For example, an individual with insulin-dependent diabetes may find that the complexity of monitoring blood sugar, assessing grams of carbohydrates in meals and snacks, and using a unit of insulin:grams of carbohydrate ratio to properly dose his or her insulin all constitute an intrusive process throughout each day. In contrast, however, the patient with diabetes mellitus (DM) can use small, readily available blood glucose monitoring devices and insulin pumps or pens to accomplish these tasks without greatly deviating from daily plans, whereas an individual with end stage renal disease may need to attend a dialysis center three times a week for several hours to access hemodialysis. The accessibility of mobile technology may, for most patients, make DM-management much less intrusive than the need to sacrifice three half-days a week at a clinic with hemodialy-

sis. These different tasks, specific to their treatments, highlight the different ways in which accessibility and intrusiveness impact ongoing quality of life.

Cost

The national direct and indirect costs of health care are discussed in detail in Chapter 2, and costs specific to each disease are discussed in the following chapters that address these health conditions. The cost of treatment to each individual patient or family is, however, another matter. For any costs that are not covered by medical insurance for medication, supplies, travel to appointments, or particular foodstuffs for dietary needs, the burden falls on the patient and his or her family. The unitary nature of use for such items as pills and syringes means very simply that the more consistently the patient uses them, the greater the cost. As described in Chapter 8, the strips for someone with diabetes to test his or her blood glucose (BG) may cost approximately $1.00 per strip. If a patient is experiencing difficulty being consistent and active in monitoring his or her BG, the fact that it costs a dollar for each episode may operantly punish the behavior, encouraging him or her to test fewer times in order to save money.
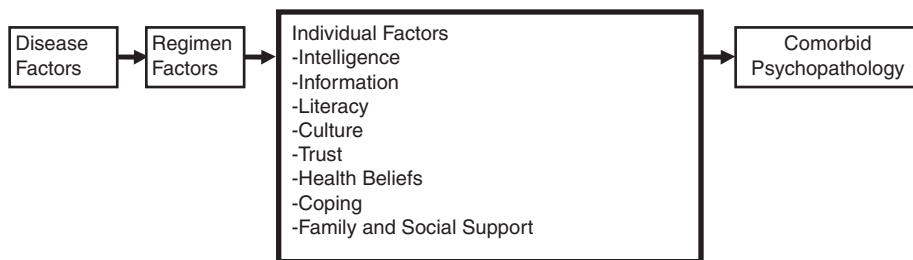
Even when patients enjoy insurance prescription plans that cover the cost of medication, supplies, and medical appointments, the co-pays or coinsurance may pose barriers for those who are either stressed financially or have other priorities for monetary expenditure. Patients may perceive that "if I go fewer times to the doctor" or "go more slowly through my prescription," they will limit costs of co-pays/coinsurance, and thereby reduce the effectiveness of their medical treatment. Clinicians should also consider the nonmedical costs of treatment regimen. For someone with celiac disease, for example, most gluten-free foods are more costly than their standard counterparts. Clinicians may play an important role by understanding and assisting patients to problem-solve such difficulties in order to prevent these cost issues from rendering treatment ineffective.

Side Effects

Side effects of any treatment regimen may become a primary barrier to patients' ongoing participation in treatment. The type or degree of side effects of medication or self-treatment activities may be painful or disruptive of quality of life. Some examples of intolerable regimen side effects may include medications that interrupt sexual functioning; activities, such as intramuscular injections for muscular sclerosis, may deter individuals from carrying out those activities; or treatments that increase the risks of health problems other than those it treats. For example, some chemotherapy protocols for active cancer may pose the increased risk of other cancers. This author has known patients for whom this information regarding increased cancer risk in the future, discussed during the informed consent for treatment, made them almost unwilling to accept the chemotherapy. The clinician plays an important role by helping the patient explore, understand, and problem-solve this daunting dilemma: The therapy that is likely to cure the cancer you *already have* may increase your risk of other cancers in the future.

INDIVIDUAL FACTORS

As we consider the specific demands placed on the individual and family by the condition factors and the regimen factors to treat or manage the disease process, we have

| Disease Factors | → | Regimen Factors | → | Individual Factors
-Intelligence
-Information
-Literacy
-Culture
-Trust
-Health Beliefs
-Coping
-Family and Social Support | → | Comorbid Psychopathology |

Figure 1.4 Individual Factors

not yet considered how *this person* will interact with these demands, how *this individual* will cope with the challenges and changes in lifestyle, functional independence, and expectations for the future. We must next consider the individual factors and how these will interact with the challenges posed to the individual and family. Even though we have been considering the condition factors and the regimen factors very carefully, considering the demands that are specific to *this* individual's disease presentation and treatment plan, we have been considering these factors rather categorically. We have been considering the stress and coping demands predicted by the disease and treatment in a rather categorical manner. We must now consider how the individual characteristics of *each patient* and *each patient's family* will appraise these stressors and coping demands, how they will adjust and adapt to these challenges, and how identifiable individual characteristics will become strengths or risk factors in dealing with the health condition and treatment.

We will start with a reasonable list of these factors, as indicated in Figure 1.4.

Intelligence

Intelligence is usually considered to be a rather stable factor, especially among adults. For that reason, and since it is not particularly amenable to interventions that may alter or increase intelligence (except among developing children), it has not received much research attention. Nonetheless, it is obvious that the understanding of disease progression, of treatment regimens, or self-management activities will be greatly affected by an individual's cognitive skills. More importantly, some treatment regimens are more difficult to understand and master than others, and more likely to pose difficulties for someone with low intelligence. For example, taking a single pill each day may not be greatly affected by a patient's intelligence, whereas an insulin regimen for diabetes, or issues related to transmission of viral diseases like HIV or Hepatitis C may pose enough complexity to render those with lower intelligence less capable of managing their condition.

Information

Having considered a patient's intelligence, we must next consider the amount and type of information a patient acquires. Given the common dictum "knowledge is power," the amount of useful information provided to patients may vary from one health condition to the next, or from one clinical setting to the next. A quick case example may help make this point. A 48-year-old man with type II diabetes had progressed to needing insulin to manage his blood glucose. He was quite intelligent, but

received very little information about his insulin regimen in the primary care setting. He understood that Regular insulin (a fast-acting insulin) had a greater impact, per unit of insulin, on blood glucose than the NPH insulin (an intermediate-action insulin). However, he did not understand that each had a different response time. That is, he wasn't adequately informed that Regular insulin began acting within .5 hour and peaked and abated its action within a few hours, and that NPH insulin began acting at about 4 hours, and peaked at about 6 hours. So, he would awaken and test his blood glucose. It was 320, rather than the goal of 70–130. He would take only the NPH, because he didn't want to take the "stronger" Regular insulin, because he feared it would dangerously lower his blood glucose, inducing hypoglycemia (low blood glucose). He would test his blood glucose again at about 11 AM, finding that it was still about 320. This would not surprise the diabetologists of the world, as the NPH had not yet begun to act to lower his blood glucose. He would then become frustrated and acquiesce to taking some Regular insulin. As such, he was taking additional short-acting insulin, just at the time when his NPH was about to initiate its peak. Within an hour or two, his blood sugar would be about 30 (dangerously low), and he found himself shaking and sweating. He would then overeat, to compensate for the low blood glucose, not take any more insulin, and wake up with his blood glucose at 250. Now, anyone who is adequately informed about the response time of the insulins would realize that he was almost killing himself every afternoon, yet taking no insulin to properly manage his morning, evening, or nighttime blood glucose. Once this was explained to him, he quickly initiated a new, more appropriately timed insulin delivery (see Chapter 8 for a full discussion of diabetes regimen factors).

Literacy

In many situations, information about new diagnoses or treatment options are provided in the form of written material. This ignores the fact that many individuals cannot read, or cannot read well. Inadequate health literacy may relate to poorer understanding and follow-through on treatment (Kripalani et al., 2006). Most individuals who cannot read are very protective of this fact and will not readily admit to their reading difficulties. Although the average reading level in the United States is at the eighth grade, almost no information about medical issues is at that level of reading comprehension.

Culture

Culture has become a more critical consideration in the provision of health services as the U.S. population becomes steadily more diverse (Whitfield, Weidner, Clark, & Anderson, 2003). It is important to consider culture from multiple perspectives, including the following factors: race, ethnicity, gender, sexual orientation, nation of origin, religion, socioeconomic status, and residential geography. Although there is not an opportunity to overview cultural factors in detail here, the following are important parameters for consideration in health psychology research and treatment endeavors:

1. How each of these factors affect risk for particular health problems.
2. How each of these factors affect access to health services.
3. How each of these factors affect an individual's approach to and utilization of available health services.

4. How each of these factors affect patient interest, trust, acceptance, and follow-through regarding treatment options.

See chapters 2 and 3 regarding disparities in access, risk factors, and prevention issues regarding culture.

Trust

As medical providers and caregivers, we assume that patients understand that we are attempting to help them, and have their best interest in mind. This makes it difficult to conceive that some individuals do not trust us. Even beyond issues related to culture, as described, other experiences may result in substantial mistrust among our patients.

Some individuals have, in the past, not felt heard by their providers. They have been told that "there's no reason to be experiencing the reported pain," or "the medication should be making that better," even when the symptoms persist and it appears that their providers do not wish to hear these experiences. At the extreme, individuals may experience events related to medical treatment as traumatic. Several examples may highlight this. First, a 59-year-old woman was raped by a physician in the physician's office in 1965, at age 18. In the year 2006, she is extremely hesitant and distrusting of her new primary care physician, 41 years later. Indeed, this woman was experiencing post-traumatic stress symptoms, triggered by meeting a new, unfamiliar male physician. While this had nothing to do with the actual approach or medical services of this new physician, the traumatic event was not something that this woman was going to disclose unless the physician and the medical team directly addressed her apprehension.

Another example involves a young African American woman with sickle-cell disease (SCD). In multiple previous admissions to the hospital with SCD crises, she observed that the physicians would start analgesic medication with meperidine HCl, which would make her feel agitated and not reduce the pain. After several hours on meperidene HCl, the physicians would switch her to IV morphine, and usually need to add hydromorphone to alleviate the pain. After multiple admissions, in which the patient observed that morphine and hydromorphone would remit both the pain and the episode more quickly, in about 12 hours, allowing her to return home with no narcotic prescription, she attempted to inform her emergency and hospital providers about this pattern. When the providers accosted her for "drug seeking," because she was asking for a particular medication and at particular doses, she would recoil and stop her disclosure of the pattern of analgesic efficacy in previous admissions. She developed the expectation that the medical team would attack her unjustly, and often presented in a preemptively hostile and defensive manner. However, when practitioners listened to her report of previous analgesic responses and assessed that she did not show any pattern of between-crisis narcotic usage, they would hear her self-observation, respond appropriately, and often save an entire day of inpatient services.

Health Beliefs

The *health beliefs model* was developed with the observation that patients have their own beliefs about disease risks and treatment benefits. Individuals often develop their own naive beliefs about the causes of disease, the significant signs and symptoms of disease, and the remission of disease (Leventhal & Nerenz, 1982), and construct their own theories about disease factors. The health beliefs model (Becker, 1991; Rosen-

stock, 2000) posits that patients' beliefs about their disease states may be more influential to their disease-related activity than medically determined disease information. The health beliefs model identifies several factors for which patients' beliefs may affect their treatment participation: (1) patient beliefs about the *severity* of their condition, (2) patient beliefs about their *susceptibility* of acquiring the disease or complications of the disease, (3) patient beliefs about *cost* of treatment adherence (including costs in inconvenience, effort, time, and money), (4) patient beliefs about *benefits* of treatment adherence, and (5) patient beliefs regarding the environmental and social *cues to action* that may assist in their treatment adherence. Simply stated, a patient who believes that the *severity* of his or her disease is great, the *susceptibility* to future complications is high, but the *benefit* of self-management is high and the *cost* of self-management is low, and that the *cues* in his or her environment will help him or her to adhere to treatment will likely engage more successfully in self-treatment than someone who perceives the *severity* of his or her disease to be low, the *susceptibility* to future complications to be low, the *cost* of self-management to be high and the *benefit* of self-treatment to be low, and that there will be few *cues* in his or her environment to help remember to adhere to treatment. Research into the role of health beliefs and disease management and prevention has yielded mixed results, depending on the type and the complexity of the health-related behavior (Ironson, Balbin, & Schneiderman, 2002). Studies have indicated that individuals' cancer screening behavior was affected by their perceived severity of cancer and benefits of cancer screening (for a review, see Fertig, Hayes, DiPlacido, Zauber, & Redd, 1998), as well as perceived barriers and inconvenience of screening (Rimer et al., 1991) and perceived risk of getting cancer (Diefenbach, Miller, & Daly, 1999; Epstein & Lerman, 1997; Farley, Minkoff, & Barkan, 2001; Hailey, Carter, & Burnett, 2000; Lerman et al., 1993; Lindberg & Wellisch, 2001 McCaul, Branstetter, Schroeder, & Glasgow, 1996).

Coping

Coping refers to the actions or strategies employed to manage or reduce stressful experience. The most widely applied model of coping is the cognitive-mediation model (Lazarus, 1999). The model emphasizes the role of cognitive appraisal in the processing of stimulus conditions, explaining why different individuals respond differently to the same types of stressors, and why the same individual may respond differently to a similar stressor at different times. The model articulates three essential stages in the coping process. The first is *primary appraisal,* in which the individual evaluates the stressor. In the second stage, *secondary appraisal,* the individual evaluates what options are available to manage the stressful situation or reduce its impact. Third, in the *coping* stage, the individual chooses and uses a strategy to cope with the stressor (Lazarus, 1999; Lazarus & Folkman, 1984). The model emphasizes that there is no universally best strategy for effective coping, that most individuals employ a variety of coping strategies over time and in different stressful situations, and it respects the fluid complexity of most stressful conditions (Folkman & Lazarus, 1985). Coping strategies are conceptualized to function as either *problem-focused coping,* strategies that attempt to change the stressful situation or the relationship between the individual and the stressful context, or *emotion-focused coping,* in which the individual alters his or her appraisal or emotional reaction to the stressful situation (Lazarus, 1999). Factor analyses have identified factors that constitute problem-focused coping, emotion-focused coping, and at times a third category, such as escape/avoidance (Ingledew,

Hardy, Cooper, & Jemal, 1996; Rosberger, Edgar, Collet, & Kournier, 2002), or social support (Aldwin & Revenson, 1987; Rosberger et al., 2002). Research suggests that coping is most effective when the individual's appraisal of the stressor matches well with the demand characteristics of the situation, and the individual chooses a coping strategy that matches this appraisal of the stressor. That is, if an individual accurately assesses that the stressor is controllable and chooses a problem-focused coping, or accurately appraises the situation to be uncontrollable and chooses an emotion-focused coping, there exists a reasonable match between the coping strategy and the characteristics of the stressor. Spiegel and Classen (2000) emphasize, however, that *active coping*, rather than resignation or avoidance, is imperative, and can serve both problem-focused and emotion-focused functions in controllable and largely uncontrollable stressors. Indeed, finding means to actively accept and address controllable aspects of chronic and potentially life-threatening disease is important, and active, problem-focused coping is often most helpful in these situations (Fawzy et al., 1990). Studies have indicated that, for many health stressors, active coping results in better psychological adjustment and quality of life and in better medical outcomes (see Manne, 2003, for a full review).

Social Support

The beneficial role of positive social and family support has been studied extensively, although a full discussion of the topic is beyond the scope of this chapter. It will be discussed regarding separate diseases in almost each chapter in Part 3. It is worth mentioning here, however, that the degree of social support has been associated with the development of coronary heart disease, endocrine reactions to stress, immunocompetence, and disease recovery and adjustment (see Manne, 2003, for full review).
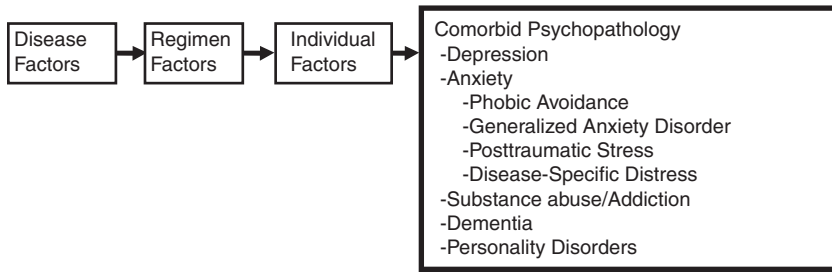
COMORBID PSYCHOPATHOLOGY

Up to this point in the chapter, all the factors that have been discussed are relevant to any and all patients and families. That is, the role of these factors in adjusting to and self-managing disease and health conditions does not always constitute psychopathology. In addition to the influence of these factors on adjustment to illness, however, the presence of psychological disorders poses difficulties that can significantly impact adjustment to health conditions, self-management of chronic conditions, response to medical treatment, and the resulting medical outcomes.

Since these factors will be discussed with regard to each of the diseases covered in Part 3, and chapters 14 to 17 in Part 4, I will here generally overview the particular difficulties that prevalent psychological disorders may pose for diagnosis and treatment of acute and chronic health problems (see Figure 1.5).

Depression

Depending upon study methodology and sample, the prevalence of major depression is approximately 4.9% and 17% for current and lifetime depression, respectively among the general public (Blazer, Kessler, McDonagle, & Swartz, 1994), 4% to 40% among patients attending outpatient medical visits (Katon & Schulberg, 1992; Cavanaugh & Zalski, 1998; Niles et al., 2005), and 10% to 14% among nonpsychiatric medical inpatients (Katon & Schulberg, 1992). Depression is twice as prevalent among

Figure 1.5 Comorbid Psychopathology

women as men (Kessler, 2003). Individuals with depression are more likely to have a chronic disease (Cavanaugh & Zalski, 1998), and those with a comorbid medical disease exhibit poorer recovery from their depression (Katon & Schulberg, 1992). In general, individuals experiencing depression report more physical symptoms, poorer self-appraised health, seek medical attention at two to ten times the rate (Cavanaugh & Zalski, 1998; Von Korff, Katon, & Lin, 1990), and are 25% more likely to be obese (Simon et al., 2006) than individuals without depression.

Higher rates of depression have been detected among individuals with particular diseases, such as diabetes and cardiac conditions, and depression is associated with poorer medical outcomes among these patients (see chapters 6 and 8 for full review). In addition, underdiagnosis and inadequate treatment of depression persists. A study of depression and anxiety among patients on an inpatient cardiac unit found that providers identified only 15% of the patients with major depressive disorder following myocardial infarction (heart attack; Huffman et al., 2006).

Given the fatigue, difficulty with motivation, hopelessness, and dysphoria that constitute the typical experience of depression, it is understandable that these symptoms can hinder consistent self-management of health problems. Furthermore, the assessment of depression symptoms among those with a physical health condition can be complicated by overlapping symptomatology, requiring careful consideration of the respective somatic, affective, and cognitive symptoms of depression. Given the relationship between comorbid depression and poorer outcomes in medical treatments, assessment and treatment of depression is imperative for optimal medical outcomes.

ANXIETY

Studies indicate that generalized anxiety disorder (GAD) is nearly as prevalent as major depression, in the range of 2.8% to 8.5% (Roy-Byrne & Wagner, 2004). Panic disorder prevalence has been reported at 4% in primary care populations, but may be 20% to 50% among patients with cardiac conditions, and 28% to 40% among patients with gastrointestinal conditions (Roy-Byrne, Wagner, & Schraufnagel, 2005). Partial diagnosis of full posttraumatic stress disorder (PTSD) was found in 11.8% of primary care patients (Stein, McQuaid, Pedrelli, Lenox, & McCahill, 2000), but at higher rates among populations treated after injuries (Zatzick, Russo, & Katon, 2003). Similar to depression, greater disability and higher utilization of health care have been observed among individuals with GAD (Wittchen et al., 2002), PTSD (Stein et al., 2000), and panic disorder (Roy-Byrne, Wagner, & Schraufnagel, 2005). Individuals with undiag-

nosed panic disorder often present in the emergency medical service, fearing they are experiencing a heart attack.

Considering the elevated arousal of the sympathetic nervous system that may accompany anxiety disorders, anxiety may interact directly with the pathophysiology of particular diseases. For example, the increased heart rate, vasoconstriction, and blood pressure that may accompany anxiety states pose a risk for someone with cardiac ischemia (Fleet et al., 2005), while neuroendocrine changes may increase blood glucose for individuals with diabetes (Cox & Gonder-Frederick, 1991).

As described earlier, regarding the stresses posed by *disease factors* and *regimen factors* of medical illness, the individual may become anxious regarding his or her disease and treatment. Anxious reactivity to these stresses and demands may generate disease-specific distress that constitutes an adjustment disorder. In some instances, this reactive anxiety may constitute posttraumatic stress, as has been found following diagnosis and treatment of cancer, myocardial infarction, or diabetes (see chapters 7, 6, and 8, respectively).

Substance Abuse and Addiction

A full coverage of substance abuse issues is provided in Chapter 17. In general, however, substance abuse can exacerbate health problems in at least four different ways:

1. The effect of excessive substance usage can act as the primary etiology for a health condition, such as cirrhosis caused by alcohol or a myocardial infarction induced by the vasoconstrictive effects of cocaine or methamphetamine.
2. The drug may increase the same risk factors as a co-occurring disease, such as alcohol increasing the risk for cardiovascular diseases similar to diabetes.
3. Intoxication may decrease consistency of self-management or treatment adherence, or recreational drugs may interact to decrease medication efficacy, thereby diminishing treatment outcomes.
4. Administration of recreational drugs may relate to transmission of infectious diseases, as described in Chapter 17.

Dementia and Other Cognitive Impairment

Individuals with cognitive impairments will be unlikely to independently make health-related life changes or manage their treatment regimen. For this reason, assistance from family, friends, or supportive services may be imperative for treatment success. Furthermore, ongoing observation and assessment for the development of neurocognitive dysfunction is important in conditions that may induce cognitive changes. For example, if an individual with AIDS develops AIDS dementia, it will become greatly difficult for him or her to manage the complex treatment regimen (see Chapter 9).

Psychosis

As with cognitive dysfunction due to dementia, psychosis will pose severe difficulties for an individual to self-manage his or her regimen for a chronic health problem. Further complicating this observation is that some antipsychotic medications may pose increased risk for health problems. Atypical antipsychotics, for example, have been

linked to the development of diabetes (Ananth & Kolli, 2005; Gianfrancesco, Wang, & Nasrallah, 2006), and those with psychotic disorders have particular difficulty managing their diabetes (El-Mallakh, 2006).

Personality Disorders

Whereas the relationships between personality disorders and health conditions have received much less empirical research investigation than depression and anxiety, it is important to consider personality disorders in several respects. First, individuals with personality disorders may experience difficulties in their relationships with their medical providers. Second, personality disorders that involve risk taking, greater substance abuse, or poor social support may all pose greater exposure to risk factors for acquisition of disease and poorer adjustment following diagnosis.

COMPREHENSIVE ASSESSMENT AND TREATMENT PLANNING

The utility of MI-MAP is the coordination of a comprehensive and consistent process for assessment and treatment planning. By organizing the inquiry about the impact of a specific disease, treatment, and life situation on a patient and family's adjustment, the health psychology intervention may be tailored to the exact stressors, demands for coping, and individual factors that serve as risks or resources for each patient's adjustment. The MI-MAP can also be useful if a clinician is called on to help a client with a disease the clinician is not already proficient with or knowledgeable about. By identifying which of this rather exhaustive set of factors are relevant to a patient's health or adjustment difficulties, treatment strategies can be individualized to the needs of each particular patient. In order to quickly yet responsibly educate oneself about a disease state, its treatment, and organize the inquiry regarding the patient's response, MI-MAP offers a ready map.

REFERENCES

Albright, C. (2003). Reflections and projections: Interviews with the founders of the Society of Behavioral Medicine. *Outlook,* (Summer): 4–5.

Alexander, F. (1950). *Psyhosomatic medicine.* New York: Norton.

Alwin, C. C., & Revenson, T. A. (1987). Does coping help? A reexamination of the relation between coping and mental health. *Journal of Personality and Social Psychology, 53,* 337–348.

Amelang, M., Schmidt-Rathjens, C., & Matthews, G. (1996). Personality, cancer, and coronary heart disease: Further evidence on a controversial issue. *British Journal of Health Psychology, 1,* 191–205.

American Psychiatric Association (2000). *Diagnostic and statistical manual of mental disorders* (4th ed.) Washington, DC: Author.

Ananth, J., & Kolli, S. (2005). Atypical antipsychotic agents and increased risk of diabetes: Class action or differential action? *Expert Opinion on Drug Safety, 4,* 55–68.

Becker, M. H. (1990). Theoretical models of adherence and strategies for improving adherence. In S. A. Shumaker, E. B. Schron, J. K. Ockene, C. T. Parker, & J. L. Probstfield (Eds.), *The handbook of health behavior change* (pp. 5–43). New York: Springer.

Belar, C. D., & Deardorff, W. W. (1995). *Clinical health psychology in medical settings: A practitioner's guidebook.* Washington, DC: American Psychological Association.

Berg, A. T., Jianxin Lin, Ebrahimi, N., Testa, F. M., Levy, S. R., & Shinnar, S. (2004). Modeling remission and relapse in pediatric epilepsy: Application of a Markov process. *Epilepsy Research, 60,* 31–40.

Blazer, D. G., Kessler, R. C., McDonagle, K. A., & Swarcz, M. S. (1994). The prevalence and distribution of major depression in a national community sample: The national comorbidity survey. *The American Journal of Psychiatry, 151,* 979–986.

Brody, D. S., Khaliq, A. A., & Thompson, T. L. (1997). Patients' perspectives on the management of emotional distress in primary care settings. *Journal of General Internal Medicine, 12,* 403–406.

Brody, D. S., Thompson, T. L., Larson, D. B., Ford, D. E., Katon, W. J., & Magruder, K. M. (1995). Recognizing and managing depression in primary care. *General Hospital Psychiatry, 17,* 93–107.

Bronfenbrenner, U. (1977). Toward an experimental ecology of human development. *American Psychologist, 32,* 513–531.

Cavanagh, S. R., Shin, L. M., Karamouz, N., & Rauch, S. L. (2006). Psychiatric and emotional sequelae of surgical amputation. *Psychosomatics, 47,* 459–464.

Cavanaugh, S., & Zalski, A. (1998). Psychiatric diagnosis. In L. S. Goldman, T. N. Wise, & D. S. Brody (Eds.), *Psychiatry for primary care physicians* (pp. 19–40). Chicago: American Medical Association.

Cheung, E., Alvaro, R., & Colotla, V. A. (2003). Psychological distress in workers with traumatic upper or lower limb amputations following industrial injuries. *Rehabilitation Psychology, 48,* 109–112.

Cox, D. J., & Gonder-Frederick, L. A. (1991). The role of stress in diabetes mellitus. In P. M. McCabe & N. Schneiderman (Eds.), *Stress, coping, and disease* (pp. 119–134). Hillsdale, NJ: Erlbaum.

Cummings, N. A., O'Donohue, W., Hayes, S. C., & Follette, V. (2001). *Integrated behavioral healthcare: Positioning mental health practice with medical surgical practice.* San Diego, CA: Academic.

Devins, G. M., Dion, R., Pelletier, L. G., Shapiro, C. M., Abby, S., Raiz, L. R., Binik, Y. M., & Dunbar, F. (1943). *Psychosomatic diagnosis.* New York: Hoeber.

Diefenbach, M. A., Miller, S. M., & Daly, M. B. (1999). Specific worry about breast cancer predicts mammography use in women at risk for breast and ovarian cancer. *Health Psychology, 18,* 532–536.

Difede, J., & Barocas, D. (1999). Acute intrusive and avoidant PTSD symptoms as predictors of chronic PTSD following burn injury. *Journal of Traumatic Stress, 12,* 363–369.

Dilorio, C., McDonnell, M., McCarty, F., & Yeager, F. (2006). Initial testing of the Antiretroviral Medication Complexity Index. *Journal of the Association of Nurses AIDS Care, 17,* 26–36.

Doherty, W. J., McDaniel, S. H., & Hepworth, J. (1985). Medical family therapy: An emerging arena for family therapy. *Journal of Family Therapy, 16,* 31–46. Special issue: Developments in family therapy in the USA.

DuHamel, K. N., Difede, J., Foley, F., & Greenleaf, M. (2002). Hypnotizability and trauma symptoms after burn injury. *International Journal of Clinical and Experimental Hypnosis, 50,* 33–50.

Dunbar, F. (1943). *Psychosomatic diagnosis.* Oxford: Hoeber.

El-Mallakh, P. (2006). Evolving self-care in individuals with schizophrenia and diabetes mellitus. *Archives of Psychiatric Nursing, 20,* 55–64.

Engel, G. L. (1977). The need for a new medical model: A challenge for biomedicine. *Science, 196,* 129–136.

Epstein, S. A., & Lerman, C. (1997). Excessive health behaviors in those at risk for physical disorder. *Journal of Psychosomatic Research, 43,* 223–225.

Eysenck, H. J. (2002). Personality as a risk factor in cancer and coronary heart disease. In D. T. Kenny, J. G. Carlson, F. J. McGuigan, & J. L Sheppard (Eds.), *Stress and health: Research and clinical applications* (pp. 291–318). Amsterdam: Harwood Academic.

Farley, M., Minkoff, J. R., & Barkan, H. (2001). Breast cancer screening and trauma history. *Women & Health, 34*, 15–27.

Fawzy, F. I., Cousins, N., Fawzy, N. W., Kemeny, M. E., Elashoff, R., & Morton, D. (1990). A structured psychiatric intervention for cancer patients. I. Changes over time in methods of coping and affective disturbance. *Archives of General Psychiatry, 47*, 720–725.

Fertig, D. L., Hayes, D. F., DiPlacido, J., Zauber, A., & Redd, W. J. (1998). Psychological issues in cancer screening. In J. C. Holland (Ed.), *Psycho-oncology* (pp. 147–172). New York: Oxford University Press.

Fleet, R., Lespérance, F., Arsenault, A., Grégoire, J., Lavoie, K., Laurin, C., et al. (2005). Myocardial perfusion study of panic attacks in patients with coronary artery disease. *The American Journal of Cardiology, 96*, 1064–1068.

Folkman, S., & Lazarus, R. S. (1985). If it changes it must be a process: Study of emotion and coping during three stages of a college examination. *Journal of Personality and Social Psychology, 48*, 150–170.

Gianfrancesco, F., Wang, R. H., & Nasrallah, H. A. (2006). The influence of study design on the results of pharmacoepidemiologic studies of diabetes risk with antipsychotic therapy. *Annals of Clinical Psychiatry, 18*, 9–17.

Grudzinski, A. N. (2001). Considerations in the treatment of anxiety disorders: A pharmacoeconomic review. *Expert Opinion on Pharmacotherapy, 2*, 1557–1569.

Hailey, B. J., Carter, C. L., & Burnett, D. R. (2000). Breast cancer attitudes, knowledge, and screening behavior in women with and without a family history of breast cancer. *Health Care for Women International, 21*, 701–715.

Hall, G. (1904). *Health, growth, and heredity.* New York: Teachers College Press.

Hippocrates. (1923). *Volume II: On decorum and the physician.* (W. H. S. Jones, Trans.). London: Heinemann.

Huffman, J. C., Smith, F. A., Blais, M. A., Beiser, M. E., Januzzi, J. L., & Fricchione, G. L. (2006). Recognition and treatment of depression and anxiety in patients with acute myocardial infarction. *The American Journal of Cardiology, 98*, 319–324.

Ingeldew, D. K., Hardy, L., Cooper, C. L., & Jemal, H. (1996). Health behaviours reported as coping strategies: A factor analytical study. *British Journal of Health Psychology, 1*, 263–281.

Ironson, G., Balbin, E., & Schneiderman, M. (2002). Health psychology and infectious diseases. In T. J. Boll, S. B. Johnson, N. W. Perry, Jr., & R. H. Rozensky (Eds.), *Handbook of clinical health psychology: Vol 1, Medical disorders and behavioral applications* (pp. 5–36). Washington, DC: American Psychological Association.

James, H. (1922). *On vital reserves: The energies of men.* Cambridge, MA: Harvard University Press.

Katon, W., & Schulberg, H. C. (1992) Epidemiology of depression in primary care. *General Hospital Psychiatry, 14*, 237–247.

Katz, L. S., & Epstein, S. (2005). The relation of cancer-prone personality to exceptional recovery from cancer: A preliminary study. *Advances in Mind-Body Medicine, 21*, 3–4.

Kazak, A. E. (1986). Families with physically handicapped children: Social ecology and family systems. *Family Process, 25*, 265–281.

Kessler, R. C. (2003). Epidemiology of women and depression. *Journal of Affective Disorders, 74*, 5–13. Special issue: Women and depression.

Kripalani, S., Henderson, L. E., Chiu, E. Y., Robertson, R., Kolm, P., & Jacobson, T. A. (2006). Predictors of medication self-management skill in a low-literacy population. *Journal of General Internal Medicine, 21*, 825–856.

Lazarus, R. S. (1999). *Stress and emotion: A new synthesis.* New York: Springer.

Lazarus, R. S., & Folkman, S. (1984). *Stress, appraisal, and coping.* New York: Springer.

Lerman, C., Daly, M., Sands, C., Balshem, A., Lustbader, E., Heggan, T., Goldstein, L., James, J., & Engstrom, P. (1993). Mammography adherence and psychological distress among women at risk for breast cancer. *Journal of the National Cancer Institute, 85,* 1074–1080.

Leukemia & Lymphoma Society. (2007). Retrieved January 15, 2007, from http://www .leukemia-lymphoma.org/all_page?item_id=7026#treatment

Leventhal, H., & Nerenz, D. R. (1982). A model for stress research and some implications for the control of stress disorders. In D. Meichenbaum & M. Jaremko (Eds.), *Stress prevention and management: A cognitive behavioral approach* (pp. 5–38). New York: Plenum Press.

Lindberg, N. M., & Wellisch, D. (2001). Anxiety and compliance among women at high risk for breast cancer. *Annals of Behavioral Medicine, 23,* 298–303.

Manne, S. (2003). Coping and social support. In A. M. Nezu, C. M. Nezu, & P. A. Geller (Eds.), Handbook of psychology: Health psychology (Vol. 9, pp. 51–74). Hoboken, NJ: Wiley.

Marks, D. F., Murray, M., Evans, B., & Willig, C. (2000). *Health psychology: Theory, research, and practice.* London: Sage.

Marks, D. F., Sykes, C. M., & McKinley, J. M. (2003). Health psychology: Overview and professional issues. In A. M. Nezu, C. M. Nezu, & P. A. Geller (Eds.), *Handbook of psychology: Volume 9: Health psychology.* Hoboken, NJ: Wiley.

Matarazzo, J. D. (1982). Behavioral health's challenge to academic, scientific, and professional psychology. *American Psychologist, 37,* 1–14.

McCaul, K. D., Branstetter, A. D., Schroeder, D. M., & Glasgow, R. E. (1996). What is the relationship between breast cancer risk and mammography screening? A meta-analytic review. *Health Psychology, 15,* 423–429.

McCubbin, M. A., & McCubbin, H. I. (1993). Families coping with illness: The resiliency model of family stress, adjustment, and adaptation. In C. Danielson, B. Hamel-Bissell, & P. Winstead-Fry (Eds.), *Families, health and illness.* New York: Mosby.

McGowan, P., Kutner, N. G., Beanlands, H., & Edworthy, S. M. (2001). Structure of lifestyle disruptions in chronic disease: A confirmatory factor analysis of the Illness Intrusiveness Ratings Scale. *Medical Care, 39,* 1097–1104.

Miller, N. E. (1969). Learning of visceral and glandular responses. *Science, 163,* 434–445.

Miller, N. E. (1978). Biofeedback and visceral learning. *Annual Review of Psychology, 29,* 373–404.

Niles, B. L., Mori, D. L., Lambert, J. F., & Wolf, E. J. (2005). Depression in primary care: Comorbid disorders and related problems. *Journal of Clinical Psychology in Medical Settings, 12,* 71–77.

O'Leary, A. (2006). np. Emotions and breast cancer: Health consequences of women's coping. *PsycCRITIQUES.*

Rief, W., Martin, A., Klaiberg, A., & Brähler, E. (2005). Specific effects of depression, panic, and somatic symptoms on illness behavior. *Psychosomatic Medicine, 67,* 596–601.

Rimer, B. K., Lerman, C., Trock, B., King, E., & Engstrom, P. F. (1991). Why do some women get regular mammograms? *American Journal of Preventive Medicine, 7,* 69–74.

Rolland, J. S. (1987). Family illness paradigms: Evolution and significance. *Family Systems Medicine, 5,* 482–503.

Rosberger, Z., Edgar, J., Collet, J. P., & Fournier, M. A. (2002). Patterns of coping in women completing treatment for breast cancer: A randomized controlled trial of Nucare, a brief psycho-education workshop. *Journal of Psychosocial Oncology, 20,* 19–37.

Rosenstock, L. M. (2000). Health belief model. In A. E. Kazdin (Ed.), *Encyclopedia of psychology* (Vol. 4., pp. 78–80). Washington, DC: American Psychological Association.

Roy-Byrne, P. P., Wagner, A. W., & Schraufnagel, T. J. (2005). Understanding and treating panic disorder in the primary care setting. *Journal of Clinical Psychiatry, 66*(Suppl. 4), 16–22.

Schilling, L. S., Grey, M., & Knafl, K. A. (2002). The concept of self-management of Type 1 diabetes in children and adolescents: An evolutionary concept analysis. *Journal of Advanced Nursing, 37*, 87–99.

Schwartz, G. E., & Weiss, S. M. (1977). What is behavioral medicine? *Psychosomatic Medicine, 39*, 377–381.

Schwartz, G. E., & Weiss, S. M. (1978). Yale Conference on Behavioral Medicine: A proposed definition and statement of goals. *Journal of Behavioral Medicine*, 1:3–12.

Shinnar, S., & Pellock, J. M. (2002). Update of the epidemiology and prognosis of pediatric epilepsy. *Journal of Child Neurology, 17*, S4–S17.

Simon, G. E., Von Korff, M., Saunders, K., Miglioretti, D. L., Crane. P. K., van Belle, G., et al. (2006). Association between obesity and psychiatric disorders in the US adult population. *Archives of General Psychiatry, 63*, 824–830.

Smith, T. W., & Nicassio, P. M. (1995). Psychological practice: Clinical application of the biopsychosocial model. In P. M. Nicassio and T. W. Smith (Eds.), *Managing chronic illness: A biopsychosocial perspective* (pp. 1–31). Washington, DC: American Psychological Association.

Spiegel, D., & Classen, C. (2000). *Group therapy for cancer patients: A research-based handbook of psychosocial care.* New York: Basic Books.

Stein, M. B., McQuaid, J. R., Pedrelli, P., Lenox, R., & McCahill, M. E. (2000). Posttraumatic stress disorder in the primary care medical care setting. *General Hospital Psychiatry, 22*, 261–269.

Stoddard, F. J., Saxe, G., Ronfeldt, H., Drake, J. E., Burns, J., Edgren, C., & Sheridan, R. (2006). Acute stress symptoms in young children with burns. *Journal of the American Academy of Child & Adolescent Psychiatry, 45*, 87–93.

Strachey, J. (2000). *The standard edition of the complete psychological works of Sigmund Freud.* New York: W. W. Norton.

Taylor, S. E. (1990). Health psychology. *American Psychologist, 45*, 40–50.

Thompson, R. J., Jr., Gustafson, K. E., Hamlett, K. W., & Spock, A. (1992). Stress, coping and family functioning in the psychological adjustment of mothers of children with cystic fibrosis. *Journal of Pediatric Psychology, 17*, 573–585.

Van Egeren, L., & Striepe, M. I. (1998). Assessment approaches in health psychology: Issues and practical considerations. In P. M. Camac & S. J. Knight (Eds.), *Clinical handbook of health psychology: A practical guide to effective interventions* (pp. 17–50). Ashland, OH: Hogrefe & Huber.

Van Loey, N. E. E., Maas, C. J. M., Faber, A. W., & Taal, L. A. (2003). Predictors of chronic posttraumatic stress symptoms following burn injury: Results of a longitudinal study. *Journal of Traumatic Stress, 16*, 361–369.

Von Korff, M., Katon, W., & Lin, E. (1990). Psychological distress, physical symptoms, utilization and the cost-offset effect. In N. Sartorious, D. Goldberg, G. de Girolamo, J. Cost e Silva, Y. Lecrubier, & V. Wittchen (Eds.), *Psychological disorders in medical settings* (pp. 159–169). Toronto: Hogrefe & Huber.

Wallander, J. L., Thompson, R. J., & Alriksson-Schmidt, A. (2003). Psychosocial adjustment of children with chronic physical conditions. In M. C. Roberts (Ed.), *Handbook of pediatric psychology.* New York: Guilford.

Wallander, J. L., & Varni, J. W. (1992). Adjustment in children with chronic physical disorders: Programmatic research on a disability-stress-coping model. In A. M. LaGreca, L. Siegel, J. L. Wallander, & C. E. Walker (Eds.), *Stress and coping in child health* (pp. 279–298). New York: Guilford.

Whitfield, K. E., Weidner, G., Clark, R., & Anderson, N. B. (2003). Sociodemographic diversity

and behavioral medicine. *Journal of Consulting and Clinical Psychology, 70,* 463–481. Special Issue: Behavioral medicine and clinical health psychology.

Wittchen, H. U., Kessler, R. C., Beesdo, K., Krause, P., Höfler, M., & Hoyer, J. (2002). Generalized anxiety and depression in primary care: Prevalence, recognition, and management. *The Journal of Clinical Psychiatry, 63*(Suppl. 8), 24–34.

Zatzick, D. (2003). Posttraumatic stress, functional impairment, and service utilization after injury: A public health approach. *Seminars in Clincal Neuropsychiatry, 8,* 149–157.

Zickmund, S., Ho, E. Y., Masuda, M., Ippolito, L., & LaBrecque, D. R. (2003). "They treated me like a leper": Stigmatization and the quality of life of patients with Hepatitis C. *Journal of General Internal Medicine, 18,* 835–844.