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Somatic Symptom and Related Disorders

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Individuals exhibiting multiple somatic symptoms often present to medical practitioners believing that they are physically ill, yet upon evaluation, they are informed that there is no known physiological source underlying their reports of distress. Although many of these patients will be satisfied with negative medical examination results, a significant subgroup will anxiously continue to worry about these physical symptoms—a phenomenon traditionally known as somatization. Somatization denotes the presence of physical symptoms (e.g., chest pain) for which a demonstrable disease process or bodily oriented pathology is not identified, but which cause distress for and impairment to the individual. Individuals who do not receive a medical diagnosis for their symptoms are likely to continue to seek help for their physical symptoms, demand more physical examinations and specialist referrals, undergo costly laboratory tests, and in rare cases, even end up on an operating table (Harth & Hermes, 2007; Warwick & Salkovskis, 1990). At the extreme, such somatization behavior can interfere with life activities and goals, resulting in clinically significant impairment—a phenomenon typically classified by the fifth edition of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-5; American Psychiatric Association, 2013) as *somatic symptom disorder*. Yet, somatization processes frequently occur in other "somatic disorders," including conversion disorder, illness anxiety disorder, and factitious disorder, as well as many other psychiatric conditions (e.g., panic disorder, major depressive disorder; DSM-5, 2013).

Somatization is a relatively common occurrence in the general medical system. Moreover, several studies suggest that approximately 30% of somatic symptoms in primary care and related clinic settings are medically unexplained (Khan, Khan, & Kroenke, 2000; Kroenke & Price, 1993; Marple, Kroenke, Lucey, Wilder, & Lucas, 1997; Narrow, Rae, Robins, & Regier, 2002; Smith et al., 2003). Further, somatization appears to maintain cross-cultural and cross-national applicability (Zvolensky, Feldner, Eifert, Vujanovic, & Solomon, 2008).

Somatization is associated with a high degree of personal suffering measured in both human and financial terms. For example, Katon, Sullivan, and Walker (2001) analyzed several studies with community, primary care, and medical specialty samples and determined that individuals with unexplained somatic symptoms experienced severe personal distress and corresponding life impairment. Somatizing individuals have higher rates of inpatient and outpatient healthcare utilization, and incur correspondingly higher inpatient and outpatient medical costs (Barsky, Orav, & Bates, 2005; Hansen, Fink, Frydenberg, & Oxhoj, 2002). In the United States, some estimates suggest the cost associated with treating somatization at approximately $256 billion a year (Barsky et al., 2005).

Importantly, somatization does not rule out the possibility of a true physical illness. In fact, many physical healthcare problems, typically quite mild, can be found among individuals with somatization problems (e.g., hypertension). Thus, somatization denotes an excessive degree of worry about physical health and overuse of medical services, relative to the severity of *identifiable* illness. Perhaps not surprisingly, those individuals without a medical explanation for their suffering seem to experience more anxiety and depression than others with similar illness experiences that do have diagnoses (Katon et al.,

2001). This difference even held in one study that examined individuals who sacrificed extensive amounts of energy and time to their care (individuals in the top 10% of frequent primary care visitors); those without an identifiable illness reported a higher degree of physical, social, and mental impairments compared with their "diagnosable" counterparts (Vedsted, Fink, Sørensen, & Olesen, 2004). Typically, these impairments are long-standing (occur across most phases of life) and tend to be exacerbated by concurrent stressors in everyday life. Although somatization is indeed a vexing healthcare problem, this domain represents an exciting opportunity for researchers from diverse disciplines to work together in a collaborative manner to better understand the relations between "body and mind" and health and disease.

The main goal of the present chapter is to provide a contemporary overview of the process of somatization as it applies to somatic symptom disorders. To some extent, our discussion is necessarily organized around the categories and classification of somatic symptom and related disorders in DSM-5 (2013). It should be noted, however, that while the presented classifications of somatic symptom disorders are based on DSM-5, we incorporate elements of DSM-IV (American Psychiatric Association, 1994). The inclusion of the DSM-IV was necessary, given the very limited research on DSM-5 to date. Furthermore, we attempt to move beyond DSM categories toward a more function-based dimensional perspective of somatization problems. We believe that such an approach is potentially useful because it targets analyses towards fundamental biobehavioral processes and thereby provides information that is likely to be directly useful for the design of clinical interventions.

The first section of the chapter briefly reviews somatic symptom and related disorders from the DSM-5 perspective, highlighting the prevalence, nature, and the diagnostic validity of such diagnoses. We then outline how a dimensional perspective that focuses on key biobehavioral processes may be a more useful approach for understanding somatic disorders than the DSM's categorical approach. Next, we address some key vulnerability processes for somatic symptom disorders. Finally, we address how a *dimensional perspective* and a focus on dysfunctional processes related to illness behavior can be translated into treatments for somatic symptom disorders.

Classification, Prevalence, and Course of Somatic Symptom and Related Disorders

Considering the extensive DSM revisions regarding somatic symptom and related disorders, we believe it is necessary to highlight the most consequential changes early in this chapter. The somatic symptom and related disorders (DSM-5) category was previously titled *somatoform disorders* (DSM-IV). According to the DSM-5 (APA, 2013), *somatic symptom disorders* may or may not accompany diagnosed medical disorders; a diagnosis of a somatic symptom or related disorder is based on the endorsement of symptoms rather than the absence of a medical explanation. Further, DSM-5 criteria emphasizes that the diagnosis should be made in consideration of the way persons present and interpret the somatic symptoms. DSM-5 also presents updated, more distinct categories for this and related disorders, and no longer includes somatization disorder, hypochondriasis, pain disorder, or body dismorphic disorder as categories of somatic symptom disorder.

DSM-5 defines the common feature of somatic symptom disorders as the conspicuousness of somatic symptoms associated with significant distress and impairment. Abnormal and/or excessive thoughts, feelings, or behaviors regarding the somatic symptoms must result in significant distress or significantly disrupt daily life.

Although the exact prevalence of specific somatic symptom disorders is not known, it is estimated that around 5–7% of the general population has somatic symptom disorder (American Psychiatric Association, 2013). DSM-5 distinguishes between five somatic symptom and related disorders: somatic symptom disorder, illness anxiety disorder, conversion disorder, psychological factors affecting other medical conditions, and factitious disorder. We begin our discussion with a brief overview of these categories.

Somatic Symptom Disorder: Somatic symptom disorder is characterized by many physical complaints, with or without clear or known physical causes, accompanied by excessive thoughts, feelings, and behaviors regarding the physical complaints. The condition may last for many years and, in some cases, extend over the entire adult life span. To meet the DSM-5 diagnostic criteria, an individual needs to present distressing somatic symptoms or somatic symptoms that significantly interfere with the individual's ability to function in daily life, and maladaptive thoughts, feelings, or behaviors about the somatic symptoms. Additionally, symptoms must be persistent for typically more than 6 months. These symptoms lead to frequent and multiple medical consultations, complex medical history, and to alterations of the person's life-style. Physical and laboratory findings may or may not detect a plausible medical condition as the cause of the somatic symptoms. Its onset is in early adulthood, course is often chronic, and prognosis is generally regarded as poor.

Illness Anxiety Disorder: A new disorder, although somewhat similar to hypochondriasis, illness anxiety disorder is characterized by a preoccupation with having or acquiring a serious illness accompanied by substantial anxiety about health and disease. Somatic symptoms, if present, are only mild in intensity, but somatic symptoms may not be present. Patients frequently seek reassurance, check their bodies, and avoid illness-related situations. Informing patients of the absence of a disease process, or explaining the benign nature of the symptoms, does not reassure the patient, and may even heighten the individual's concerns (American Psychiatric Association, 2013).

Moreover, the renewed worry over symptoms may contribute to the individual continuing to overuse medical services. The onset of illness anxiety disorder is believed to be early to middle adulthood. The course of illness anxiety is presently unclear, but thought to be a chronic and relapsing condition.

Conversion Disorder (Functional Neurological Symptom Disorder): Conversion disorder is characterized by symptoms suggesting a neurological disorder with medical investigations and neurological examinations failing to identify a neurological or general medical disorder. At times, the particular symptoms may even be inconsistent with general neurological knowledge. Patients may present with any one or a combination of motor symptoms (e.g., paralysis), seizures or convulsions, and sensory deficits (e.g., blindness, anesthesia, and aphonia). An important requirement for the diagnosis is the temporal relation between conversion symptoms and a psychological stressor such as acute grief or victimization. Patients are typically unaware of any psychological basis for their symptoms and report being unable to control them. The diagnosis of conversion disorder is rare and difficult to establish with estimates ranging between 0.001% and 0.3% (1–300 per 100,000; American Psychiatric Association, 1994). Although conversion disorder may occur at any age, onset is typically in late childhood or early adulthood. Onset is often sudden and in response to conflicts or stressful situations such as unresolved grief and sexual trauma (Sar, Islam, & Öztürk, 2009).

Psychological Factors Affecting Other Medical Conditions: Psychological factors affecting other medical conditions are characterized by the adverse effect of one or more clinically significant psychological or behavioral factors on a medical condition. Specifically, psychological or behavioral factors such as psychological distress, patterns of interpersonal interaction, coping styles, and maladaptive health behaviors increase the risk for suffering, death, or disability (American Psychiatric Association, 2013). Psychological factors affecting other medical conditions can occur across the lifespan. The prevalence of the condition is unclear, but it is believed to be a more common diagnosis than somatic symptom disorder.

Factitious Disorder: Factitious disorder is the falsification of medical or psychological symptoms, associated with identified deception. Exaggeration, fabrication, simulation, and induction are ways in which individuals can falsify illness. Great psychological distress or functional impairment may develop in persons with factitious disorder, or those with factitious disorder may impose distress or impairment on others. Factitious disorder usually occurs in intermittent episodes. Onset is usually in early adulthood. The prevalence is estimated to be about 1% (American Psychiatric Association, 2013).

Diagnostic Validity of DSM-defined Somatic Symptom and Related Disorders As the diagnostic validity of DSM-5 has been relatively unexplored, we examine the diagnostic validity of DSM-IV. DSM-IV diagnostic validity of somatoform disorders (currently titled "Somatic Symptom and Related Disorders" in the DSM-5) in relation to each other as well as to other clinical syndromes was problematic and continues to be the focus of intense debates (Mayou, Kirmayer, Simon, & Sharpe, 2005; Löwe et al., 2008). Scholars frequently observed that conditions defined under somatoform disorders did not necessarily represent distinct conditions, and thus lead to difficulties distinguishing between symptoms of somatic disorders and physical health problems abound (Mayou et al., 2005). Developers of DSM-5 recognized and attempted to address this overlap, although it is unknown if the new classifications will provide clarity.

Furthermore, the distinctiveness of somatic disorders has been questioned repeatedly. As a category, somatic disorders continue to lack conceptual coherence and clearly defined diagnostic criteria. According to DSM-5, comorbidity is frequent and somatic symptom disorders diagnoses may accompany anxiety or depression disorders (American Psychiatric Association, 2013). Van der Feltz-Cornelis and van Balkom (2010) suggested that the DSM-5 committee completely abolish this category and simply re-categorize each subcategory so that it is subsumed under cosyndromal disorders (i.e., depressive disorders and anxiety disorders). Further, while categories are used to group items that share characteristics, scholars suggests that this category lacks a unifying principle (Sykes, 2012). The lack of a unifying principle adds further support for the abolishment of this category.

The general diagnostic criteria overlap between psychiatric disorders associated with somatic symptom disorders and somatic symptom disorders, leads to high rates of multiple diagnoses. Depression and somatization, for instance, are four times more likely to co-occur than not (Leiknes, Finset, Moum, & Sandanger, 2008). Löwe and colleagues (2008) reviewed several studies and concluded that overlap with depressive and/or anxiety disorders occurred in as many as 26–59% of cases. Mayou and colleagues (2005) point out that the subcategories are unreliable and arbitrary. Many of the subcategories fail to achieve acceptable standards of reliability, which can negatively affect patient's rights to medical-legal and insurance entitlements.

Moreover, Bass and Murphy (1995) questioned the distinction between somatic symptom disorders and personality disorders, given the high rates of comorbidity between the two. More recent research by Garcia-Campayo, Alda, Sobradiel, Olivan, and Pascual (2007) showed that individuals with somatic disorders were 2.2 times more likely to have a personality disorder than other individuals with psychiatric diagnoses. Chaturvedi, Desai and Shaligram (2006) note that somatization and *abnormal illness behavior* are intricately related. Perhaps new diagnostic standards should pay greater attention to an individual's actions, but then again, abnormal illness

behavior can develop anywhere, irrespective of a person's psychiatric diagnosis.

First (2011) argued that proposed revisions to DSM-5, which were eventually slightly revised, accepted, and integrated, present ambiguous and overlapping criteria for assessing somatic symptom disorder. Specifically, criteria B lists three items that are conceptually similar, leading to endorsement of multiple, related items. Given that DSM-5 retains the arbitrary threshold for number of symptoms to determine severity, clinicians may inappropriately specify the severity of the disorder due to the conceptual overlap in criteria.

Cultural influences on somatization processes are well documented (Ryder et al., 2008; Zvolensky et al., 2008). Based on a review of data from cross-cultural studies, Escobar and colleagues (2001) initially concluded that there is "considerable cultural variation in the expression of somatizing syndromes" (p. 226). Kirmayer and Sartorious (2009) have explained this variation as a function of different "symptom schemas" that reflect cultural conceptions of suffering and distress, and which are rooted in cultural causal explanations (e.g. cellular biology in Western medicine; the balance of the body's basic constituents—fire, earth, metal, water, wood—in traditional Korean culture; preservation of vital energy in Indian culture, etc.; p. 23). Thus, the specific symptoms of certain disorders often appear to be more a function of the individual's culture than of some underlying (distinct) biologically based disease process. For example, it would be helpful for clinicians to know that for some individuals of Indian descent, the experience of semen in the urine ("*dhat*") is frequently not a delusion but a somatization related to fatigue and depression, a representation of feeling sapped of "vital energy"; likewise, it would also be helpful to know that epigastric burning among individuals of Korean descent may not be heartburn but a somatic experience of intense, culturally inappropriate emotion ("*hwa-byong*" or "fire illness") (Kirmayer & Sartorious, 2009). Symptom lists for Europe and North America would, by contrast, focus on the most frequent areas of concern in these locations, heart disease and cancer (see López and Guarnaccia, Chapter 4 in this volume).

Mayou and colleagues (2005) note that the terms "somatoform" or "somatization" are often unacceptable to patients because they imply that the patients' symptoms are in their mind and "not real." Patients doubt that clinicians appreciate the reality and authenticity of their symptoms. At a more fundamental level, Mayou and associates (2005) criticized the distinction between somatic and psychological problems as inherently dualistic, which does not translate well into other cultures that have a less dualistic view of mind and body (e.g., Asia and China) than Western culture. The notion that problems can be neatly divided into those that can and cannot be explained by disease is indeed unlikely at best. Several authors also point to potential pathophysiological mechanisms that may underlie unexplained physical symptoms such as chest pain (Sharpe & Bass, 1992; Pilgrim & Wyss, 2008; Yilmaz et al., 2008). We often just do not understand them very well—and that is what we should tell patients, rather than using terms such as non-organic when describing their symptoms. We also need to recognize that there is frequently a reciprocal relation or "looping effect" between health anxiety and somatic symptoms, in which attending to sensations increases their salience and intensity (Kirmayer & Sartorious, 2009). This could occur either indirectly, through psychological processes, or directly, involving the behaviors designed to reduce anxiety over physical symptoms paradoxically increasing physical symptoms (e.g. constantly checking/scratching a lump increasing its size and irritation).

Although the DSM-5 attempts to address issues such as overlap and lack of clarity regarding boundaries for diagnoses, it still has many issues to overcome. DSM-5 recognizes the possible comorbidity between each category of somatic symptom disorders and other disorders, and proposes that concurrent diagnoses should be explored. Further, the differential diagnosis section tries to disentangle the overlapping features; however, the lack of clear, solid boundaries may result in patients being inappropriately diagnosed with a mental disorder and thus receiving inappropriate treatment (Sykes, 2012).

Toward a Dimensional Framework for Understanding Pathogenic Processes In light of the long-standing diagnostic problems with the somatic disorder category, Mayou and colleagues (2005) suggested abolishing this category in DSM-5 because the concept and category has consistently failed clinicians and patients alike. They suggested redistributing the somatic disorders to other diagnostic categories. More recently, Van der Feltz-Cornelis and Van Balkom (2010) suggested a similar notion. Löwe and colleagues (2008), on the other hand, have argued against a complete abolition of the somatic disorder category on the basis that, faulty or not, it has come to have huge personal, clinical, and societal importance, and abolishing the category would effectively abandon a large group of patients and exclude them from treatment. They argued for revisions that would integrate somatic disorders into the greater medical field, so that mental and physical health workers have identical, interdisciplinary diagnostic and treatment standards.

We previously argued (Eifert, Lejuez & Bouman, 1998; Eifert, Zvolensky & Lejuez, 2000) that overlap between related categories is not a problem of "comorbidity" or inaccurate definitions, but rather, a result of similar psychological processes involved in these conditions. Accordingly, we suggest adopting a dimensional approach to understanding illness-related concerns that can identify key biobehavioral processes. To illustrate this approach, we discuss focal dimensions of health anxiety, a psychological process that characterizes, in part, many somatic symptom disorders as well as related conditions

(e.g., panic disorder). We view health anxiety as a psychological process where persons present with problems that fall on a continuum along four dimensions:

1. Preoccupation with the body and its functioning. Such bodily preoccupation, especially when coupled with somatic complaints, may produce a state of somatic uncertainty and form the basis for the other three dimensions of the disorder.
2. Disease suspicion or conviction. The person has the suspicion or is convinced of having a serious physical disease; suspicion and conviction are on a continuum of strength, and in rare cases the conviction may reach delusional intensity.
3. Disease fear. The person fears having a serious physical disease.
4. Safety-seeking behavior such as repeated requests for medical examinations and tests, bodily checking, verbal complaints, and seeking reassurance. The function of such behavior is to reduce worry and anxiety over physical illness (Eifert et al. 2000; Salkovskis & Warwick, 2001).

A person could obtain a high score on any one or all four dimensions of health anxiety. For example, disease suspicion/conviction may or may not be accompanied by a strong fear of the suspected disease. Clinically, this feature is most apparent in patient's resistance to medical reassurance that nothing is wrong. This is particularly evident in a study by Rief, Heitmüller, Reisberg, and Rüddel (2006), which found that when patients with medically unexplained symptoms were asked to recall meetings with their doctor, the patients remembered a higher likelihood of medical explanations than their doctors actually gave. Accordingly, a dimensional classification system could help overcome some challenges inherent to a traditional diagnostic perspective of somatic disorders. Moreover, identifying dimensions that allow a classification of illness behavior based on the function that such behavior serves, rather than just its topography, might lead to a better understanding and improved treatments of persons with somatic problems (Eifert & Lau, 2001).

General Vulnerability Processes for Abnormal Illness Behavior

Given our previous discussion as to prototypical characteristics of health anxiety, the next logical question pertains to the types of processes that increase or decrease the risk for developing abnormal illness behavior. As discussed at the onset of this chapter, just about all people experience distressing physical sensations at some point in their lives. Moreover, a substantial percentage will even experience robust internal physical (interoceptive) reactions in the form of panic attacks, limited symptom panic attacks, gastrointestinal distress, respiratory infections, strained muscles, and so on. In fact, such bodily distress is so common to the human experience that it seems almost inconceivable to imagine a person going through life without experiencing at least some significant somatic disturbance. These normal experiences of physical symptoms become problematic when they begin to interfere with a person's life due to obsessive preoccupation with them and excessive rigid behaviors designed to control, reduce, or escape from them. Such pervasive experiential avoidance behavior seems to be at the core of many anxiety-related clinical problems (Forsyth, Eifert, & Barrios, 2006; Walker & Furer, 2008)—in fact, maladaptive avoidance behavior is a core feature of all anxiety disorders (Eifert & Forsyth, 2005; see also Williams, Chapter 9 in this volume).

Although systematic knowledge about causes is lacking, factors such as parental modeling, stressful life events, biological or genetic components, and greater cultural acceptance of physical versus mental illness appear to be related to the development of somatic disorders (Heinrich, 2004). One finding, that there is a decreased likelihood of somatic symptom diagnoses when primary care physicians have a more personal and long-term relationship with patients, also suggests that open, honest doctor–patient relationships protect against somatization diagnoses (Gureje, 2004). Difficulty in tolerating emotions (experiential avoidance) has also been shown to be associated with the development of somatization symptoms (Chawla & Ostafin, 2007). Difficulty expressing emotions (alexithymia) and negative affect/neuroticism are associated with symptom increase and persistence (De Gucht, 2002).

As these studies indicate, there are a number of biopsychosocial processes that increase vulnerability for the development of somatic symptom pathology or abnormal illness behavior generally. The processes that we focus on in this section include: (1) an inherited risk for emotional responsivity to physical sensations; (2) deficits in emotion regulatory skills; and (3) language-based and observational learning.

Before this discussion, however, we need to briefly define what we mean by the term *abnormal illness behavior*. Pilowsky (1993, p. 62) defined abnormal illness behavior as the "persistence of a maladaptive mode of experiencing, perceiving, evaluating, and responding to one's own health status" despite the fact that a doctor has conducted a comprehensive assessment of relevant biological, psychological, social and cultural factors and provided the patient with feedback about the results of these assessments and opportunities for discussion and clarification of the results. Thus, abnormal illness behavior essentially refers to the disagreement between the doctor and patient about the sick role to which the patient feels entitled. The concept of abnormal illness behavior is valuable for understanding not only patients with functional somatic symptoms but also the behavioral aspects of all illness (Chaturvedi et al., 2006).

Inherited Risk for Emotional Responsivity to Physical Sensations There is consistent empirical evidence for a strong inherited component or substrate for negative emotionality. Researchers have referred to this inherited disposition by a number of different terms, including *negative affectivity*, *trait anxiety*, and *neuroticism* (Barlow, 2001; Lau, Ely, & Stevenson, 2006). These synonymous labels are intended to capture a general predisposition to experience negative affect (e.g., anxiety) and perhaps abrupt emotional reactivity (e.g., panic) to challenging or stressful life events.

Although the characteristics of negative affectivity vary across specific negative emotional experiences (e.g., panic versus anger), they all posit that high degrees of negative emotionality are associated with a lower threshold of initial affective response, slower recovery to baseline, and greater reactivation of arousal with repeated exposure to stressful events. High reactivity is generally associated with inhibited temperament, whereas low reactivity is associated with uninhibited temperament (Kagan, 1989; Letcher, Smart, Sanson, & Toumbourou, 2009). Thus, individual differences in temperament are often related to the experience and regulation of affect because they constrain or facilitate certain types of responding. For example, the temperamental characteristic of neuroticism is related to tendencies to experience low levels of self-esteem in situations of interpersonal conflict, and global and day-to-day perceptions of relationships are more dependent on self-esteem in highly neurotic individuals than in others (Denissen & Penke, 2008).

As behavioral genetic research continues to make important strides in our understanding of emotional functioning, we may eventually have specific models articulating the extent to which a specific gene or combination of genes contributes to a specific anxiety disorder or health disorder. At this stage, however, it appears that a general disposition for negative affectivity is inherited. The contribution of this inherited component is estimated to be at approximately 30% in the development of somatic-related disorders (Kendler, Walters, Truett, & Heath, 1995). No research has documented the exact proportion of explained variance for the development of a specific disorder, although there is some evidence that there are both shared and specific genetic vulnerabilities across anxiety-related disorders (Smoller, Block, & Young, 2009). It is likely that a genetic predisposition creates the biological conditions that make people prone to respond with anxiety and panic reactions to certain bodily changes and processes (Walker & Furer, 2008, p. 369) One research challenge in this domain will be to specify how genetic vulnerabilities (once they are identified) might influence the pathogenesis of a specific disorder.

Development of Emotion Self-Regulatory Skills Research has shown that early in life humans develop a repertoire of regulatory oriented skills to deal with elevated levels of bodily arousal and concomitant emotional distress. For example, parents often distract distressed infants by orienting them to other stimuli, and children eventually learn to reorient and soothe themselves (Rueda & Rothbart, 2009, p. 26). Thus, the effective management of bodily states, particularly negative emotional experiences, is a critical early step in psychological development. As children mature, they learn to approach and avoid salient environmental stimuli, and the members of society increasingly expect them to gain better emotion regulatory skills (e.g., suppression of crying in school). By adulthood, the individual is expected to have sophisticated emotional control skills and the ability to learn new regulatory skills for a variety of changing sociocultural contexts. For example, adults are not supposed to demonstrate signs of emotional distress in social, performance, or work settings. Adults without emotion regulation skills often suffer in modern society. An interesting series of studies by Kantor-Martynuska (2009) provides some insights why this may be the case. She found that highly emotionally reactive individuals were more likely to prefer music at low volumes and to recall music as having been played loudly. This suggests that reactive individuals may have an increased sensitivity to arousing stimuli (music) and a tendency to experience it as aversive.

The preceding discussion highlights the notion that emotion regulation skills are expected to increase consistently across the lifespan and are an integral component of mental health (Stewart, Zvolensky, & Eifert, 2002). When individuals lack the ability to effectively alter their emotional experiences, they are more susceptible to physical discomfort, negative affect, and anxiety (Rothbart, Ziaie, & O'Boyle, 1992). An important way in which children learn emotional regulation skills is through exercising their capacity to explore their world, both literally and metaphorically. Developmental researchers originally referred to these experiences as *mastery learning opportunities* (Rothbart, 1989). Impoverished environments where parents or caregivers (e.g., teachers) respond to children in a non-contingent manner produce more emotional distress than do environments characterized by contingent outcomes. For example, van der Bruggen, Stams, Bögels, and Paulussen-Hoogeboom (2010) found that maternal rejection mediated a relationship between parent perceptions of children's negative emotionality and the children's anxiety/depression. The researchers hypothesize that maternal rejection instills a sense of helplessness in children, making them less likely to experience mastery of their negative feelings, and thereby increasing the likelihood that negative emotions eventually lead to symptoms of anxiety and depression. Similar findings have been observed in studies of non-human animals raised in environments with little control over important outcomes (e.g., availability of food; Mineka, Gunnar, & Champoux, 1986; Roma, Champoux, & Suomi, 2006). Such findings are important to understanding somatic disorders because greater degrees of perceived uncontrollability

are predictive of the tendency to view ambiguous internal stimuli as threatening (NASA Scientific and Technical Information Program Office, 2004; Zvolensky, Eifert, Lejuez, & McNeil, 1999).

Coping with emotional distress is, of course, a multidimensional process. Research indicates that coping responses are best viewed from a hierarchical model that includes first-order and higher-order dimensions (Compas et al., 2001). Indeed, researchers increasingly suggest that coping with emotional distress involves strategic (voluntary) and automatic (involuntary) responses. Additionally, Compas, Conner-Smith, Saltzman, Thomsen, and Wadsworth (2001) have categorized these coping responses along the dimensions of engagement and disengagement. Engagement responding includes active, primary control-oriented responding aimed at altering the immediate situation in some sort of direct manner (e.g., leaving a situation that one finds uncomfortable because of cardiac-related distress and tension). *Disengagement* responding includes secondary control-oriented responding aimed at adapting to an uncontrollable situation by purposively altering one's cognitive-affective response to that situation (indirect responding). For instance, an individual might adapt to pain or other aversive bodily sensations by altering their cognitive response to such events (e.g., acceptance, distraction, reframing). Overall, it is likely that individuals will develop a variety of emotion regulatory skills across the lifespan, and these skills are likely to be a product of early learning experiences.

Language-Based Learning Aside from direct forms of learning, individuals also will experience affective responses to body-related events and sensations through the utilization of language. Language serves important symbolic functions by providing humans with emotional experiences without exposure to the actual physical stimuli or events that ordinarily elicit those responses (Luoma, Hayes, & Walser, 2007; Staats & Eifert, 1990). For instance, both "knowing what to do" and "knowing what to feel" involve verbal understanding of the relation between them. Thus, the meaning of health-related anxiety in a psychological sense represents a complex act of relating largely arbitrary verbal symbolic events with other events and psychological functions within a particular context. For instance, words such as anxiety and fear either implicitly or explicitly establish relations with other events such as "I am anxious or afraid of . . . something, some event, or someone."

The relational quality of terms denoting emotions, in turn, must be tied to descriptions of behavior and events with a variety of stimulus functions (e.g., eliciting, evoking, reinforcing, and punishing) and meanings (e.g., good, bad, pleasant, unpleasant, painful). In turn, people often describe their emotional experiences metaphorically in ways that others can understand (e.g., "When I feel anxious it's like a knife going through my chest"). These metaphorical extensions have no real counterpart inside the person. Instead, they function to communicate the meaning of emotional experience (feeling threatened to the point of fearing death) by identifying and relating events with known stimulus functions (a sharp knife can cut into a chest and cause death).

Society determines what kind of stimuli and events are placed in relation to each other and the nature of that relation (Hayes & Wilson, 1994). These arbitrary relations are learned and function in a variety of ways (Sidman, 1994; Staats & Eifert, 1990). Individuals become anxious about particular health-related experiences or "symptoms" because they read and hear about them in the specific cultural context in which they live. This may be one of the main reasons why cultural variations in somatic disorders are widespread and can be observed with such great regularity (Escobar et al., 2001). For instance, people in Western societies become anxious when they notice a fast or irregular heart beat because they have seen or heard many times that this event may be a sign of a heart attack. In Southeast Asian and African cultures, it is quite common to observe a phenomenon that has been labeled "*koro*," which describes an individual overcome with the belief that his penis—or, in females, her nipples—are retracting or shrinking, with fear that the organ will disappear (Barlow, 2002). In contrast, this phenomenon is quite rare in Western culture. Thus, the overwhelming finding from cross-cultural studies is that the somatic manifestation and expression of emotional distress is universal but the focus of somatic concern may vary in different cultures (see López and Guarnaccia, Chapter 4 in this volume).

The most important point is that persons with somatic disorders have likely developed complex repertoires of verbal and other symbolic responses that elicit negative affect and serve as discriminative stimuli for escape or avoidance behavior (Staats & Eifert, 1990). Thus, for otherwise healthy people, the sensations of a beating heart or chest pain may lead to a sequence of verbal and autonomic events that result in the belief that they are having a heart attack (Eifert, 1992). In this instance, a fast or irregular heartbeat is not just a felt beating heart. Instead, it is an acquired and verbally mediated formulation of what it *means* to have a fast or irregular heartbeat or chest pain (e.g., "I have heart disease" or "I am suffering from a heart attack"). Not only may the person respond to such sensations by rushing to an emergency room, but also any other public or private stimulus events associated with this response may now acquire similar negative functions (e.g., physical exercise, smoking, working hard). In this way, a variety of behaviors and events can come to elicit the physiological event that the person then misconstrues as dangerous.

Observational Learning It is also likely that persons who develop somatic symptom disorders have been exposed to negative health-related events to a greater degree than

persons who do not develop these disorders. For example, some studies indicate that a significant number of persons with cardiophobia, defined as an irrational fear of heart disease, have observed heart disease and its potentially lethal effects (e.g., death) in relatives and close friends (Eifert et al., 2000). These persons had been exposed directly to the physical and emotionally painful consequences of heart disease. As a result, they may also have had more exposure to heart-focused perceptions and interpretations of physical symptoms and physiological processes.

Observational learning is strongly involved in learning pain tolerance, pain ratings, and non-verbal expressions of pain (Flor, Birbaumer, & Turk, 1990). Such observational learning may increase the likelihood of expressing and interpreting arousal and pain in later life as a heart problem because socially acquired perceptions and interpretations of symptoms largely determine how people deal with illness. For instance, if one or both parents have heart disease, children might observe their parent's response to a heart problem. If the behavior that is modeled is maladaptive (e.g., excessive illness behavior), these children will not only be more likely to respond to stress with increased cardiovascular activity, but they will have also learned maladaptive labeling and interpretation of such symptoms and have fewer adaptive coping skills.

Individuals afflicted with somatic symptom disorders also report poorer overall health (Eifert et al., 2000). Learned maladaptive coping skills may contribute to this observation. For example, men with more somatic symptoms tend to drink more alcohol (Vijayasiri, Richman, & Rospenda, 2012). This maladaptive coping strategy was possibly observed as a child and then carried forward in life as a means to cope, especially given that parental alcohol use predicts adolescent alcohol use (Kerr, Capaldi, Pears, & Owen, 2012) and adolescent alcohol use in turn predicts adult alcohol use (Patrick, Wray-Lake, Finlay, & Maggs, 2010). The true underlying process between maladaptive coping skills, health behaviors, and somatic symptoms, however, is complex and more research is needed to disentangle these relations.

Taken together, research suggests a variety of factors may promote the development of the type of abnormal illness behavior found in somatic symptom disorders. These processes are likely nonspecific in the sense that they increase the chance of negative emotional responding and poor affect regulatory strategies. Exposure to specific illnesses or to persons who model the potential dangers of certain physical disorders may increase an individual's general vulnerability. Continued research in each of these general domains will improve our ability to predict who will develop a specific type of somatic disorder.

General Treatment Strategies for Somatic Symptom Disorders

Cognitive-behavioral theories and research have been helpful in providing a fledgling basis for a better understanding and treatment of persons with somatization problems. Important progress has been made in particular for persons with health anxiety (Eifert & Lau, 2001; Salkovskis & Warwick, 2001) and chronic pain (e.g., Flor et al. 1990; Kerns, Thorn, & Dixon, 2006; Schermelleh, Eifert, Moosbrugger, & Frank, 1997). We now overview these treatment strategies at a general level and how they can be applied to specific types of somatic disorders.

Psychologically distressed patients who present with unexplained somatic symptoms are high users of medical care and their doctors regard them as frustrating and difficult to treat (Mayou, 2009). There is often a mismatch between the expectations of these patients and their doctors' abilities and communication skills. For instance, terms such as *functional heart problem*, *nervous heart*, *atypical chest pain*, and *pseudoangina*, when used to "diagnose" unexplained chest pain, can easily be misinterpreted by a patient who is determined to believe that some significant cardiac disease is being described (Eifert et al., 2000). Healthcare providers often feel frustrated and emotionally drained because these patients obviously need psychological support but resent being referred to a psychologist or psychiatrist.

Patients often perceive the use of diagnostic labels such as hypochondriasis as an insult because these labels seem to imply that the patients' problems are not real and "just in their head." The controversy surrounding hypochondriasis supported the removal of it and, to a degree, the placement of it with illness anxiety disorder (Mayou et al., 2005). This new "recategorization," however, may not yield a large degree of improvement.

Wainwright, Calnan, O'Neil, Winterbottom, and Watkins (2006) attribute the patient perceived unacceptability of a hypochondriasis diagnosis to modern society's moral "hierarchy of illness" in which observable, stoically born physical pathology is elevated and legitimized, and somatization is denigrated and thought of as "faking it" or malingering (p. 79). They therefore argue that accepting and understanding, rather than refuting or arguing with the patient's symptoms, is the more important strategy for engaging the patient in a therapeutic working relationship. Lipsitt and Starcevic (2006) similarly state that it is extremely important for healthcare providers to treat the somatizing patient in a warm, respectful manner, without prejudice based on previous assessments from other clinicians. Healthcare professionals can help make the patient feel listened to and let them know that they regard their symptoms as "real" and do not view them as "crazy." They can also ease the patient's anxieties and enhance the relationship with the patient by telling the patient that worrying about their symptoms is reasonable and legitimate. A solid and trusting working relationship is essential for optimal help. In the engagement stage of treatment, patients can also be told that there may be alternative explanations for the difficulties they are experiencing (e.g. pathophysiological pathways; Pilgrim & Wyss, 2008; Yilmaz et al., 2008). The general treatment strategy

is to test such alternative or benign medical explanations for symptoms and to conduct therapy in the context of an experiment that provides an opportunity for testing alternative hypotheses (Eifert & Lau, 2001; Salkovskis, 1996).

Rather than merely telling patients there is no "organic" reason for their chest pain, an explanation of symptoms that overcomes the non-organic–organic dualism provides the patient with a more acceptable rationale and reassurance (Eifert, Hodson, Tracey, Seville, & Gunawardane, 1996). For instance, to provide a patient with a credible explanation of how anxiety and chest-wall muscle tension can result in chest pain, patients may be given a chest-focused relaxation with electromyographic feedback that literally shows them how they can change their chest tension levels. Salkovskis and Warwick (2001) found that reassurance which only informs the patients that there is nothing organically wrong with their bodies will actually increase future reassurance-seeking rather than decrease it. Appropriate reassurance and feedback that provides the patient with new and alternative explanations is the key to successful treatment and may help prevent the development of chronic somatization problems. In a controlled case study, Eifert and Lau (2001) found that behavioral experiments were not only useful in developing alternative symptom explanations but also in teaching the patient to reassure herself rather than seeking therapist reassurance. The treatment strategies and techniques targeting the dimensions of abnormal illness behavior related to heart-focused anxiety are summarized in Table 15.1.

Medical professionals need to be trained to provide alternative explanations rather than vague pseudo-medical labels and to acknowledge rather than dismiss patients' concerns. At the same time, withholding unnecessary medication and medical examinations (response prevention for safety-seeking behavior) is a crucial part of treatment. For instance, in their interviews with British physicians, Wainwright and colleagues (2006) describe how some doctors have adopted patient-centered philosophies and view diagnosis as a negotiated process that can approach psychosocial causality covertly over several sessions, thereby balancing a doctor's ethical commitment to scientifically rigorous standards of practice while accommodating a patient's resistance to psychological explanations. The researchers also found, however, that many physicians still struggle when dealing with these issues, so the focus should remain on developing programs for health care providers that help them communicate more effectively with their patients. Early work focused on arming physicians with basic psychological intervention skills, such as empathic listening to complaints and symptoms (Goldberg, Gask, & O'Dowd, 1989; Rost, Kashner, & Smith, 1995; Smith, Rost, & Kashner, 1995). Physicians were also taught not to reinforce patients' abnormal illness behavior by providing expensive diagnostic procedures, surgeries, and hospitalizations (Rost et al., 1995; Smith et al., 1995). Withholding such procedures also prevents iatrogenic diseases and counteracts patients' disease convictions. Mayou (2009) recommends the use of a stepped-care approach, which involves mixing therapeutic intervention with medical reassessment at various set intervals. This should also help to counteract patients' disease convictions while still moving them forward in their treatment. The results of these physician-focused interventions suggest that this balanced approach to patient care can reduce healthcare costs and at the same time increase the psychological adjustment of patients.

Finally, it is essential that we move patients from an almost exclusive focus on symptoms, which may or may not be changeable and/or controllable, to goals and behaviors that are controllable and changeable. After an initial empathic discussion of symptoms, treatment needs to shift toward more changeable behavioral targets, such as occupational problem solving, social skills training,

TABLE 15.1

Key Treatment Components Targeting Various Dimensions and Symptoms of Heart-Focused Anxiety (adapted from Eifert and Lau, 2001)

Dimensions	Treatment Strategy	Techniques
Preoccupation with heart	Demonstrate that chest pain/heart sensations are not dangerous	Reduce avoidance/expose to cardiac-related stimuli
Disease fear	Extinction of fear and exposure to avoided activities	Exposure to interoceptive (particularly cardioceptive) cues
		Reinforce "dangerous" behavior (e.g., strenuous exercise)
Disease conviction	Testing alternative symptom explanations	Explain impact of anxiety and tension on body (chest pain)
		Conduct behavioral experiments to test hypotheses
		Review evidence for/against heart disease
		Review evidence for cardiac vs. tension chest pain
Safety/reassurance-seeking	Extinction of help and reassurance-seeking	Review results of previous tests
		Withhold reassurance
		Refuse further tests
		Do physical exercise while preventing pulse checking
Physical (panic) symptoms	Reduce chronic tension and overbreathing	Chest muscle relaxation
		Teach slow diaphragmatic vs. thoracic breathing

Note: Although this example deals with heart-focused anxiety, the process dimensions are adaptable and applicable to other somatization problems.

and quality of life enhancement (Rief, Hiller, Geissner, & Fichter, 1995; Mayou, 2009). Behavioral activation treatment programs (Lejuez, Hopko, & Hopko, 2001) appear to be valuable therapists' tools to help move patients in their "valued direction" (Hayes, Strosahl, & Wilson, 2000) and at the same time reduce negative affect.

Acceptance and commitment therapy (ACT), a new acceptance-based behavior therapy, has shown great promise in the treatment of chronic pain (Vowles, Wetherell, & Sorrell, 2009) and anxiety disorders (Eifert & Forsyth, 2005). In future, this approach could easily be extended to people suffering from all types of health-related anxiety and concerns because it directly targets the experiential avoidance behavior that tends to interfere with people's daily functioning. ACT helps people to refocus their efforts on areas in their lives where they can affect change, and where they are in control, rather than wasting their time with fruitless attempts to control or change bodily sensations and their evaluations of them, which are very difficult, if not impossible, to change. ACT provides very useful therapeutic tools for helping people reorient their lives away from managing symptoms, pain and disability to moving forward and living a life guided by their values—what truly matters to them (McKay, Forsyth, & Eifert, 2010).

Specific Treatment Recommendations

Somatic Symptom Disorder It may be most useful to think of somatic problems as requiring management rather than treatment (e.g., Bass & Benjamin, 1993). Early diagnosis and the prevention of unnecessary medical and surgical investigation are of primary importance. For instance, a study by Hoyer and colleagues (2008) has shown that the specific assessment of heart-focused anxiety may help identify individuals with elevated levels of heart-focused anxiety who might benefit from interventions to help them adjust to the effects of surgery and lingering cardiac problems. Most somatic symptom patients have specific expectations regarding treatment goals and procedures and try to persuade their doctors to follow their wishes for further medical investigations and treatments. Bass and Murphy (1990) state that treatment often involves long-term supportive psychotherapy and must be directed toward controlling the demands on medical care as well as the treatment of symptoms and social disability. They recommend the following four steps:

a. encourage a long-term supportive relationship with only one understanding primary care physician to prevent doctor-shopping and to coordinate all actions;
b. see patients on regular appointments rather than on demand to prevent reinforcement of illness behavior;
c. view patient's physical complaints as a form of communication rather than as evidence of disease; and
d. minimize the use of psychotropic drugs and/or analgesic medication.

In general, adaptive behavior is encouraged and promoted, whereas sick role behavior is ignored as much as possible. Kashner, Rost, Cohen, Anderson, and Smith (1995) focused on coping with the nature and consequences of the physical symptoms, general problem solving, and helping patients take more control of their lives. These authors found that eight sessions of brief group therapy improved physical and mental health at 1-year follow-up.

A randomized controlled trial examining a comprehensive cognitive-behavioral approach for dealing with medically unexplained physical symptoms was conducted by Speckens and colleagues (1995). A cognitive-behavioral intervention group of 39 general medical outpatients was compared with a control group of 40 patients receiving optimized medical care. Treatment included imaginary exposure and distraction techniques to break the vicious circles of cognitive avoidance and preoccupation; activity scheduling, exposure *in vivo*, and response prevention to decrease avoidance behavior; relaxation training, breathing exercises, and physical exercises; and problem-solving or social skills training to overcome any problems in interpersonal relationships. At both 6- and 12-month follow-up, the intervention group reported lower intensity and frequency of symptoms, reduced illness behavior, less sleep impairment, and fewer limitations in social and leisure activities than did the control group.

More recently, Allen, Woolfolk, Escobar, Gara, and Hammer (2006) and Escobar and colleagues (2007) conducted randomized controlled trials investigating the efficacy of cognitive behavior therapy interventions for the treatment of somatic symptom disorder. Both treatments were administered in a primary care setting, but in contrast to earlier studies, patients had to exhibit more severe somatic symptoms. Allen and associates (2006) found that trained, independent raters reported less severe somatic symptoms at follow-ups among patients treated with cognitive behavioral therapy. Escobar and associates (2007) observed similar finding in that patients treated with cognitive behavioral therapy had significant improvements in clinician-rated physical symptoms and depression.

Conversion Disorder An important first step in the treatment of conversion symptoms is their early recognition in which a physical examination plays a crucial role. In many cases, a positive diagnosis can be made on the basis of the rather untypical or bizarre symptoms. Since conversion symptoms vary widely across patients, treatment needs to be individualized. Identifying precipitating stressors is crucial so that patients can be taught more adaptive ways of coping with these stressors. Occasionally, manipulation of the patient's social environmental is necessary to reduce the influence of secondary gain, such as attention from family and friends. Partners and significant others may have to learn how to reinforce the patients non-symptomatic behavior.

Behavior therapy has shown some efficacy in the treatment of conversion disorder, particularly for patients that

primarily exhibit motor symptoms and gait disturbances (Lipsitt & Starcevic, 2006; Speed, 1996). The program consisted of providing or withholding reinforcement depending on the patient's attempt at normalizing gait and increasing motor movement through specific exercises.

Researchers have successfully utilized a variety of other treatments, including psychotherapy and hypnotherapy, to treat conversion disorder (see Rosebush & Mazurek, 2011). Moene, Spinhaven, Hoogduin, and VanDyck (2003) administered hypnosis to patients diagnosed with conversion disorder, motor type, and observed a significant improvement in behavioral symptoms and motor disability compared with a control group. It is worth noting, however, that the efficacy of conversion disorder treatments is inconclusive and inconsistent (Kroenke, 2007; Rosebush & Mazurek, 2011).

Conclusions

Somatic symptoms, complaints, and concerns are very common in the general population. These problems are costly to the individuals concerned in terms of distress and financial expense, as well as to society in terms of lost productivity and health care costs. Compared with other common psychological dysfunctions (e.g., anxiety and depression), our present conceptual understanding of somatic symptom and related disorders is poor, and comprehensive integrative models are still lacking.

One factor that has impeded a better understanding of the somatic symptom disorders is the unsatisfactory and somewhat arbitrary nature of the DSM-IV classification. In view of the conceptual and diagnostic confusion, vagueness, and imprecision detailed in the DSM-IV, we greatly anticipate the research to be done exploring the new classifications and appropriateness of language in the new DSM-5. "Comorbidity" of somatic symptom disorders with anxiety disorders and depression is not a diagnostic problem but an indication that there are similarities in the underlying psychopathological processes (Aikens, Zvolensky, & Eifert, 2001). We have outlined some commonalities in emotional dysregulation processes particularly in relation to anxiety. A practical consequence for researchers and clinicians is to give up their focus on the individual disorders and increase their efforts at identifying the common functions of symptoms in persons with different somatic problems (Eifert, 1996; Kirmayer & Sartorious, 2009).

The complex relationships between the physical and psychological aspects of somatic symptom disorders has led to much confusion. We caution against an overreliance upon medical diagnostic procedures and medical theory. At the same time, research and service delivery would benefit from a more balanced approach. This approach should focus not just on finding or excluding somatic abnormalities but also on combining current medical knowledge and diagnostic techniques with the psychological assessments of a patient's behavior, cognitive processes, and social relationships (cf. Fink, 1996; Löwe et al., 2008). In our work with cardiac patients we have observed how a simple reliance on one source of information (medical or psychological) was inadequate for many patients. Instead, it was the combination of sophisticated medical tests and psychological information that yielded the type of knowledge that was most useful for recommending and designing the most appropriate treatment for the individual patient.

Hence, perhaps one of the most compelling conclusions arising from this chapter is that somatic symptom disorders cannot be adequately understood, assessed, and treated from a single perspective. Both the classification and research could be improved by adopting a multidisciplinary approach and an integrated biopsychosocial perspective. For example, Mayou, Bass and Sharpe (1995) proposed a multidimensional classification of patients with functional somatic symptoms along five dimensions: (1) Number and type of somatic symptoms; (2) mental state (mood and psychiatric disorder); (3) cognitions (e.g., symptom misinterpretations, disease conviction); (4) behavioral and functional impairment (illness behavior, avoidance, use of health services); and (5) pathophysiological disturbance (organic diseases, physiological mechanisms such as hyperventilation). As described in the section on health anxiety, Löwe and colleagues (2008) present an alternate diagnostic system that focuses on the presence of behaviors, some of which are abnormal illness behaviors. Individuals should be assessed for: (1) Dysfunctional cognitions; (2) excessive healthcare use; (3) selective attention to bodily signals; (4) persistent attribution of symptoms to undiagnosed conditions; (5) avoidance and decreased activity; and (6) functional impairments due to somatization. These criteria are behavioral and would be of more immediate relevance for treatment than diagnosing.

Although DSM-5 integrated some elements similar to the recommendations described above, the utility and appropriateness of the wording and classification is still unknown. The issues outlined throughout this chapter regarding DSM-IV and DSM-5 support assessing somatic symptom disorder using tools other than the DSM. Thus, rather than attempting to find the "correct diagnosis," we recommend assessment along the crucial dimensions involved in the regulation of maladaptive illness behavior and devising treatment programs based on such assessments. This may be more valuable than diagnosing according to the number and type of physical complaints.

A multicausal perspective suggests several potentially fruitful lines for future psychological research into somatic disorders, such as an increased focus on information processing behavior (attribution, attention, and memory), and environmental contingencies for illness behavior (e.g., social, occupational, medical). Psychoneuroimmunological studies may help to clarify particular aspects of the nature of the interface between pathophysiological changes and individual responses

to such changes as exemplified in some chronic pain research (cf. Flor et al., 1990). Although the past emphasis on the problems of patients with no demonstrable physical pathology was worthwhile and deserves continued attention, the gray area of persons with some organic pathology, bodily symptoms, and psychological distress deserves greater recognition and needs to be investigated more carefully.

Treatment programs and outcomes are likely to be enhanced by an improved conceptual understanding of these problems. The need for better theories and treatments is even more pressing for those somatic problems that have been particularly neglected in the past such as conversion problems. The relative success of recent cognitive-behavioral treatment programs for persons with unexplained physical symptoms, health anxiety, or chronic pain is promising. These treatment successes may help change the common perception of healthcare providers that people with such problems are just a "pain in the neck" and invariably difficult, or even impossible, to treat.

References

Aikens, J.E., Zvolensky, M.J., & Eifert, G.H. (2001). Fear of cardiopulmonary sensations in emergency room noncardiac chest pain patients. *Journal of Behavioral Medicine*. *24*, 155–67.

Allen, L. A., Woolfolk, R. L., Escobar, J. I., Gara, M. A., & Hamer, R. M. (2006). Cognitive-behavioral therapy for somatization disorder: a randomized controlled trial. *Archives of Internal Medicine*, *166*(14), 1512.

American Psychiatric Association (1994). *Diagnostic and statistical manual of mental disorders*. (4th ed.). Washington, DC: American Psychiatric Association.

American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders.* (5th ed.). Washington, DC: American Psychiatric Association.

Barlow, D. H. (2002). *Anxiety and its disorders: The nature and treatment of anxiety and panic* (2nd. ed.). New York, NY: Guilford.

Barsky, A., Orav, E., & Bates, D. (2005). Somatization increases medical utilization and costs independent of psychiatric and medical comorbidity. *Archives of General Psychiatry*, *62*(8), 903–10.

Bass, C. M., & Benjamin, S. (1993). The management of the chronic somatizer. *British Journal of Psychiatry*, *162*, 472–80.

Bass, C. M., & Murphy, M. R. (1990). Somatization disorder: Critique of the concept and suggestions for future research. In C. M. Bass (Ed.) *Somatization*. *physical symptoms and psychological illness*. Oxford: Blackwell (pp. 301–32).

Bass, C. M., & Murphy, M. R. (1995). Somatoform and personality disorders: Syndromal comorbidity and overlapping developmental pathways. *Journal of Psychosomatic Research*, *39*, 403–27.

Chaturvedi, S., Desai, G., & Shaligram, D. (2006). Somatoform disorders, somatization and abnormal illness behavior. *International Review of Psychiatry*, *18*(1), 75–80.

Chawla, N. & Ostafin, B. (2007). Experiential avoidance as a functional dimensional approach to psychopathology: An empirical view. *Journal of Clinical Psychology*, *63*(9), 871–90.

Compas, B. E., Conner-Smith, J. K., Saltzman, H., Thomsen, A. H., & Wadsworth, M. E. (2001). Coping with stress during childhood and adolescent: Problems, progress, and potential in theory and research. *Psychological Bulletin*, *127*, 87–127.

De Gucht, V. (2002). Neuroticism, alexithymia, negative affect and positive affect as predictors of medically unexplained symptoms in primary care. *Acta Neuropsychiatrica*, *14*(4), 181–5.

Denissen, J. & Penke, L. (2008). Neuroticism predicts reactions to cues of social inclusion. *European Journal of Personality*, *22*, 497–517.

Eifert, G. H. (1992). Cardiophobia: A paradigmatic behavioral model of heart-focused anxiety and non-anginal chest pain. *Behaviour Research and Therapy*, *30*, 329–45.

Eifert, G. H. (1996). More theory-driven and less diagnosis-based behavior therapy. *Journal of Behavior Therapy and Experimental Psychiatry*, *27*, 75–86.

Eifert, G. H., & Forsyth, J. F. (2005). *Acceptance and commitment therapy for anxiety disorders*. Oakland, CA: New Harbinger Publications.

Eifert, G. H., Hodson, S. E., Tracey, D. R., Seville, J. L., & Gunawardane, K. (1996). Cardiac anxiety, illness beliefs, psychological impairment: Comparing healthy heart-anxious patients with cardiac and surgical patients. *Journal of Behavioral Medicine*, *19*, 385–99.

Eifert, G. H., & Lau, A. (2001). Using behavioral experiments in the treatment of cardiophobia: A case study. *Cognitive and Behavioral Practice*, *8*, 305–17.

Eifert, G. H., Lejuez, C. W., & Bouman, T. K. (1998). Somatoform disorders. In A. S. Bellack & M. Hersen (Eds.). *Comprehensive clinical psychology* (Vol. 6, pp. 543–65). Oxford: Pergamon.

Eifert, G. H., Zvolensky, M. J., & Lejuez, C. W. (2000). Heart-focused anxiety and chest pain: A conceptual and clinical review. *Clinical Psychology: Science and Practice*, *7*, 403–17.

Escobar, J. I., Allen, L. A., Nervi, C. H., & Gara, M. A. (2001). General and cross-cultural considerations in a medical setting for patients presenting with medically unexplained symptoms. In G. J. G. Asmundson, S. Taylor, & B. Cox (Eds.), *Health anxiety: Clinical research perspectives on hypochondriasis and related disorders* (pp. 220–45). New York, NY: Wiley.

Escobar, J. I., Gara, M. A., Diaz-Martinez, A. M., Interian, A., Warman, M., Allen, L. A., . . . Rodgers, D. (2007). Effectiveness of a time-limited cognitive behavior therapy-type intervention among primary care patients with medically unexplained symptoms. *Annals of Family Medicine*, *5*(4), 328–35.

Fink, P. (1996). Somatization—Beyond symptom count. *Journal of Psychosomatic Research*, *40*, 7–10.

First, M. B. (2011). Moving beyond unexplained medical symptoms in DSM-5: Great idea, problematic execution. *Psychosomatics*, *52*(6), 594–5. doi: 10.1016/j.psym.2011.05.002

Flor, F., Birbaumer, N., & Turk, D. C. (1990). The psychobiology of chronic pain. Advances in *Behaviour Research and Therapy*, *12*, 47–84.

Forsyth, J. P., Eifert, G. H., & Barrios, V. (2006). Fear conditioning research as a clinical analog: What makes fear learning disordered? In M. G. Craske, D. Hermans, & D. Vansteenwegen (Eds.). *Fear and learning: Basic science to clinical application* (pp. 133–53). Washington, DC: American Psychological Association.

Garcia-Campayo, J., Alda, M., Sobradiel, N., Olivan, B., & Pascual, A. (2007). Personality disorders in somatization disorder patients: A controlled study in Spain. *Journal of Psychosomatic Research*, *62*(6), 675–80.

Goldberg, D., Gask, L., & O'Dowd, T. (1989). The treatment of somatization: Teaching techniques of reattribution. *Journal of Psychosomatic Research*, *33*, 689–95.

Gureje, O. (2004). What can we learn from a cross-national study of somatic distress? *Journal of Psychosomatic Research*, *56*(4), 409–12.

Hansen, M., Fink, P., Frydenberg, M., & Oxhoj, M. (2002). Use of health services, mental illness, and self-rated disability and health in medical inpatients. *Psychosomatic Medicine*, *64*, 668–75.

Harth, W. & Hermes, B. (2007). Psychosomatic disturbances and cosmetic surgery. *Journal der Deutschen Dermatologischen Gesellschaft*, *5*(9), 736–43.

Hayes, S. C., Strosahl, K., & Wilson, K. (2000). *Acceptance and commitment therapy: Understanding and treating human suffering*. New York, NY: Guilford Press.

Hayes, S. C., & Wilson, K. G. (1994). Acceptance and commitment therapy: Altering the verbal support for experiential avoidance. *Behavior Analyst*, *17*, 289–303.

Heinrich, T. (2004). Medically unexplained symptoms and the concept of somatization. *Wisconsin Medical Journal*, *103*(6), 83–7.

Hoyer, J., Eifert, G. H., Einsle, F., Zimmermann, K., Krauss, S., Knaut, M., . . . Köllner, V. (2008). Heart-focused anxiety before and after cardiac surgery. *Journal of Psychosomatic Research*, *64*, 291–7.

Kagan, J. (1989). Temperamental contributions to social behavior. *American Psychologist*, *44*, 668–74.

Kantor-Martynuska, J. (2009) The listener's temperament and perceived tempo and loudness of music. *European Journal of Personality*, *23*, 655–73.

Kashner, T. M., Rost, K., Cohen, B., Anderson, M., & Smith. G. R. (1995). Enhancing the health of somatization disorder patients. Effectiveness of short-term group therapy. *Psychosomatics*, *36*, 462–70.

Katon, W., Sullivan, M., & Walker, E. (2001). Medical symptoms without identified pathology: Relationship to psychiatric disorders, childhood and adult trauma, and personality traits. *Annals of Internal Medicine*, *134*(9.2), 917–25.

Kendler, K.S., Walters, E. E., Truett, K. R., & Heath, A. C. (1995). A twin-family study of self- report symptoms of panic, phobia, and somatization. *Behavior Genetics*, *25*, 499–515.

Kerns, R., Thorn, B., & Dixon, K. (2006). Psychological treatments for persistent pain: An introduction. *Journal of Clinical Psychology*, *62*(11), 1327–31.

Kerr, D. C., Capaldi, D. M., Pears, K. C., & Owen, L. D. (2012). Intergenerational influences on early alcohol use: independence from the problem behavior pathway. *Developmental Psychopathology*, *24*(3), 889–906. doi: 10.1017/S0954579412000430

Khan, A. A., Khan, A., & Kroenke, K. (2000). Symptoms in primary care: Etiology and outcome. *Journal of General Internal Medicine*, *15*, 76–7.

Kirmayer, L. & Sartorious, N. (2009). Cultural models and somatic syndromes. In J. Dimsdale, Y. Xin, A. Kleinman, V. Patel, W. Narrow, P. Sirovatka, & D. Regier (Eds.), *Somatic Presentations of Mental Disorders: Refining the Research Agenda for DSM-V* (pp. 19–40). Arlington, VA: American Psychiatric Association.

Kroenke, K. (2007). Efficacy of treatment for somatoform disorders: a review of randomized controlled trials. *Psychosomatic Medicine*, *69*(9), 881–8.

Kroenke, K. & Price, R. (1993). Symptoms in the community: Prevalence, classification, and psychiatric comorbidity. *Archives of Internal Medicine*, *153*, 2474–80.

Lau, J., Ely, T., & Stevenson, J. (2006). Examining the state–trait anxiety relationship: A behavioural genetic approach. *Journal of Abnormal Child Psychology*, *34(1)*, 19–27.

Leiknes, K., Finset, A., Moum, T., & Sandanger, I. (2008). Overlap, comorbidity, and stability of somatoform disorders and the use of current versus lifetime criteria. *Psychosomatics*, *49*(2), 152–62.

Lejuez, C. W., Hopko, D. R., & Hopko, S. D. (2001). A brief behavioral activation treatment for depression. *Behavior Modification*, *25*, 255–86.

Letcher, P., Smart, D., Sanson, A., & Toumbourou, J. (2009). Psychosocial precursors and correlates of differing internalizing trajectories from 3 to 15 years. *Social Development*, *18*(3), 618–46.

Lipsitt, D.R., & Starcevic, V. (2006). Psychotherapy and pharmacotherapy in the treatment of somatoform disorders. *Psychiatric Annals*, *36*, 341–50.

Löwe, B., Mundt, C., Herzog, W., Brunner, R., Backenstrass, M., Kronmüller, K., & Henningsen, P. (2008). Validity of current somatoform disorder diagnoses: Perspectives for classification in DSM-V and ICD-11. *Psychopathology*, *41*, 4–9.

Luoma, J., Hayes, S., & Walser, R. (2007). *Learning ACT: An acceptance and commitment therapy skills-training manual for therapists*. Oakland, CA: New Harbinger Publications.

Marple, R., Kroenke, K., Lucey, C., Wilder, J., & Lucas, C. (1997). Concerns and expectations in patients presenting with physical complaints: Frequency, physician perceptions and actions, and two-week outcomes. *Archives of Internal Medicine*, *157*, 1482–8.

Mayou, R. (2009). Are treatments for common mental disorders also effective for functional symptoms and disorders? In J. Dimsdale, Y. Xin, A. Kleinman, V. Patel, W. Narrow, P. Sirovatka, & D. Regier (Eds.), *Somatic Presentations of Mental Disorders: Refining the Research Agenda for DSM-V* (pp. 131–42). Arlington, VA: American Psychiatric Association.

Mayou, R., Bass, C. M., & Sharpe, M. (Eds.) (1995). *Treatment of functional somatic symptoms*. Oxford: Oxford University Press.

Mayou, R., Kirmayer, L., Simon, G., & Sharpe, M. (2005). Somatoform disorders: Time for a new approach in DSM-V. *American Journal of Psychiatry*, *162*, 847–55.

McKay, M., Forsyth, J. P., & Eifert, G. H. (2010). *Your life on purpose: How to find what matters and create the life you want*. Oakland, CA: New Harbinger.

Mineka, S., Gunnar, M., & Champoux, M. (1986). Control and early socioemotional development: Infant rhesus monkeys reared in controllable versus uncontrollable environments. *Child Development*, *57*, 1241–56.

Moene, F. C., Spinhoven, P., Hoogduin, K. A., & Dyck, R. V. (2003). A randomized controlled clinical trial of a hypnosis-based treatment for patients with conversion disorder, motor type. *International Journal of Clinical and Experimental Hypnosis*, *51*(1), 29–50.

Narrow, W., Rae, D., Robins, L., & Regier, D. (2002). Revised prevalence estimates of mental disorders in the United States: Using a clinical significance criterion to reconcile 2 surveys' estimates. *Archives of General Psychiatry*, *59*, 115–23.

NASA Scientific and Technical Information Program Office. (2004). *Stress, cognition, and human performance: Literature review and conceptual framework*. (Pub. No. 2004-212824). Hanover, MD: NASA Center for AeroSpace Information.

Patrick, M. E., Wray-Lake, L., Finlay, A. K., & Maggs, J. L. (2010). The long arm of expectancies: adolescent alcohol expectancies predict adult alcohol use. *Alcohol & Alcoholism*, *45*(1), 17–24. doi: 10.1093/alcalc/agp066

Pilgrim, T. & Wyss, T. (2008). Takotsubo cardiomyopathy or transient left ventricular apical ballooning syndrome: A systematic review. *International Journal of Cardiology*, *124*(3), 283–92.

Pilowsky, I. (1993). Aspects of abnormal illness behaviour. *Psychotherapy and Psychosomatics*, *60*, 62–74.

Rief, W., Heitmüller, A. M., Reisberg, K., & Rüddel, H. (2006). Why reassurance fails in patients with unexplained symptoms—an experimental investigation of remembered probabilities. *PLoS medicine*, *3*(8), e269. doi: 10.1371/journal.pmed.0030269

Rief, W., Hiller, W., Geissner, E., & Fichter, M. M. (1995). A two-year follow-up study of patients with somatoform disorders. *Psychosomatics*, *36*, 376–86.

Roma, P., Champoux, M., & Suomi, S. (2006). Environmental control, social context, and individual differences in behavioral and cortisol responses to novelty in infant rhesus monkeys. *Child Development*, *77*(1), 118–31.

Rosebush, P. I., & Mazurek, M. F. (2011). Treatment of conversion disorder in the 21st century: have we moved beyond the couch? *Current Treatment Options in Neurology*, *13*(3), 255–66.

Rost, K., & Kashner, T. M., & Smith, G. R. (1995). Effectiveness of psychiatric intervention with somatization disorder patients. *General Hospital Psychiatry*, *16*, 381–7.

Rothbart, M. K. (1989). Temperament and development. In G. Kohnstamm, J. Bates, & M. Rothbart, M. K. (Eds.), *Temperament in childhood* (pp. 187–248). Chichester: Wiley.

Rothbart, M. K., Ziaie, H., & O'Boyle, C. G. (1992). Self-regulation and emotion in infancy. In N. Eisenberg & R. A. Fabes (Eds.), *Emotion and its regulation in early development: New directions for child development*, (pp. 7–24). San Francisco, CA: Jossey-Bass.

Rueda, M. & Rothbart, M. (2009). The influence of temperament on the development of coping: The role of maturation and experience. In E. Skinner & M. Zimmer-Gembeck (Eds.), *Coping and the development of regulation*. *New Directions for Child and Adolescent Development*, 124, pp. 19–31. San Francisco, CA: Jossey-Bass.

Ryder, A., Yang, J., Xiongzhao, Z., Shugiao, Y., Yi, J., Heine, J., & Bagby, R. (2008). The cultural shaping of depression: Somatic symptoms in China, psychological symptoms in North America? *Journal of Abnormal Psychology*, *117*(2), 300–13.

Salkovskis, P. M. (1996). The cognitive approach to anxiety: Threat beliefs, safety seeking behavior, and the special case of health anxiety and obsessions. In P.M. Salkovskis (Ed.) *Frontiers of cognitive therapy* (pp. 49–74). New York, NY: Guilford.

Salkovskis, P. M., & Warwick, H. M. C. (2001). Making sense of hypochondriasis: A cognitive model of health anxiety. In G. J. G. Asmundson, S. Taylor, & B. Cox (Eds.), *Health anxiety: Clinical research perspectives on hypochondriasis and related disorders* (pp. 46–64). New York, NY: Wiley.

Sar, V., Islam, S., & Öztürk, E. (2009). Childhood emotional abuse and dissociation in patients with conversion symptoms. *Psychiatry and Clinical Neuroscience*, *63*(5), 670–7.

Schermelleh-Engel, K., Eifert, G. H., Moosbrugger, H., & Frank, D. (1997). Perceived competence and anxiety as determinants of maladaptive and adaptive coping strategies of chronic pain patients. *Personality and Individual Differences*, *22*, 1–10.

Sharpe, M., & Bass, C. M. (1992). Pathophysiological mechanisms in somatization. *International Review of Psychiatry*, *4*, 81–97.

Sidman, M. (1994). *Equivalence relations and behavior: A research story*. Boston, MA: Authors Cooperative.

Smith, R. C., Lein, C., Collins, C., Lyles, J. S., Given, B., Dwamena, F. C., . . . Given, C. W. (2003). Treating patients with medically unexplained symptoms in primary care. *Journal of General Internal Medicine*, *18*(6), 478–89.

Smith, G. R., Rost, K., & Kashner, T. M. (1995). A trial of the effect of a standardized psychiatric consultation of health outcomes and cost in somatizing patients. *Archives of General Psychiatry*, *52*, 238–43.

Smoller, J., Block, S., & Young, M. (2009). Genetics of anxiety disorders: The complex road from DSM to DNA. *Depression and Anxiety*, *26*(11), 965–75.

Speckens, A. E. M., van Hemert, A. M., Spinhoven, P., Hawton, K. E., Bolk, J. H., & Rooijmans, H. G. M. (1995). Cognitive behavioral therapy for medically unexplained physical symptoms: A randomised controlled trial. *British Medical Journal*, *311*, 1328–32.

Speed, J. (1996). Behavioral management of conversion disorder: Retrospective study. *Archives of Physical Medicine and Rehabilitation*, *77*, 147–54.

Staats, A. W. & Eifert, G. H. (1990). A paradigmatic behaviorism theory of emotion: Basis for unification. *Clinical Psychology Review*, *10*, 539–66.

Stewart, S. H., Zvolensky, M. J., & Eifert, G. H. (2002). The relations of anxiety sensitivity, experiential avoidance, and alexithymic coping to young adults' motivations for drinking. *Behavior Modification*, *26*, 274–96.

Sykes, R. (2012). The DSM 5 website proposals for somatic symptom disorder: three central problems. *Psychosomatics*, *53*(6), 524–31. doi: 10.1016/j.psym.2012.06.004

van der Bruggen, C., Stams, G., Bögels, S., and Paulussen-Hoogeboom, M. (2010). Parenting behaviour as a mediator between young children's negative emotionality and their anxiety/depression. *Infant and Child Development*, *19*(4), 354–65.

van der Feltz-Cornelis, C. M., & van Balkom, A. J. (2010). The concept of comorbidity in somatoform disorder—a DSM-V alternative for the DSM-IV classification of somatoform disorder. *Journal of Psychosomatic Research*, *68*(1), 97–9; author reply 99–100. doi: 10.1016/j.jpsychores.2009.09.011

Vedsted, P., Fink, P., Sørensen, H., & Olesen, F. (2004). Physical, mental and social factors associated with frequent attendance in Danish general practice. A population-based cross-sectional study. *Social Science Medicine*, *59*(4), 813–23.

Vijayasiri, G., Richman, J. A., & Rospenda, K. M. (2012). The Great Recession, somatic symptomatology and alcohol use and abuse. *Addict Behav*, *37*(9), 1019–24. doi: 10.1016/j.addbeh.2012.04.007

Vowles, K. E., Wetherell, J. L., & Sorrell, J. T. (2009). Targeting acceptance, mindfulness, and values-based action in chronic pain: Findings of two preliminary trials of an outpatient group-based intervention. *Cognitive and Behavioral Practice*, *16*, 49–58.

Wainwright, D., Calnan, M., O'Neil, C., Winterbottom, A., & Watkins, C. (2006). When pain in the arm is 'all in the head': The management of medically unexplained suffering in primary care. *Health, Risk & Society*, *8*(1), 71–88.

Walker, J. & Furer, P. (2008). Interoceptive exposure in the treatment of health anxiety and hypochondriasis. *Journal of Cognitive Psychotherapy*, *22*(4), 366–78.

Warwick, H. M. C., & Salkovskis, P. M. (1990). Hypochondriasis. *Behaviour Research and Therapy*, *28*, 105–17.

Yilmaz, A., Mahrholdt, H., Athanasiadis, A., Vogelsberg, H., Meinhardt, G., Voehringer, M., . . . Sechtem, U. (2008). Coronary vasospasm as the underlying cause for chest pain in patients with pvb19 myocarditis. *Heart*, *94*(11), 1456–63.

Zvolensky, M. J., Eifert, G. H., Lejuez, C. W., & McNeil, D. W. (1999). The effects of offset control over 20% carbon dioxide-enriched air on anxious responding. *Journal of Abnormal Psychology*, *108*, 624–32.

Zvolensky, M. J., Feldner, M. T., Eifert, G. H., Vujanovic, A. A., & Solomon, S. E. (2008). Cardiophobia: A critical analysis. *Transcultural Psychiatry*, *45*, 231–52.