The Interface Between Physical and Psychological Symptoms

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Somatic symptoms account for over half of all primary care visits and are often medically unexplained as well as chronic or recurrent. Unexplained, persistent, or multiple somatic symptoms are frequently a marker for an underlying depressive or anxiety disorder. Certain clinical predictors increase the likelihood of psychiatric comorbidity and should trigger earlier screening and intervention. Both antidepressants as well as nonpharmacologic psychological treatments have proven effective for treatment of individual somatic symptoms as well as functional syndromes such as irritable bowel syndrome, fibromyalgia, migraine headache, and other pain disorders. A stepped care approach is described, which may be useful in the care of patients with somatic symptoms. When somatic and psychological symptoms coexist, treatment of both is necessary to optimize clinical outcomes.

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Symptoms are somewhat arbitrarily dichotomized as either psychological (e.g., depressed mood, anxiety, guilt) or physical. Physical symptoms comprise bodily sensations such as back pain, headache, bowel disturbances, dizziness, palpitations, fatigue, and numerous other somatic perturbations that an individual perceives as uncomfortable or worrisome. Although such symptoms are often called *physical* by physicians who care predominantly for medical disorders and *somatic* by mental health specialists, the 2 adjectives are largely synonymous and will be used interchangeably in this article. However, it is inaccurate to equate physical symptoms with physical (i.e., medical) disorders since many patients with stable medical disorders are asymptomatic, and many patients with physical symptoms do not have a medical disorder that accounts for the presence and/or severity of their physical symptoms.

Somatic symptoms account for over half of all outpatient visits, or an estimated 400 million clinic visits in the United States alone each year.[1] Approximately half of these symptoms are pain complaints (e.g., back pain, headache, joint pains, chest or abdominal pain), one fourth are respiratory symptoms (most commonly cough, sore throat, rhinorrhea, and other upper respiratory symptoms related to self-limited viral upper respiratory infections), and one quarter are nonpain, nonrespiratory symptoms (e.g., fatigue, dizziness, palpitations). Physical symptoms presenting in the clinic represent only the tip of the iceberg, since less than one fourth of symptomatic patients in the community come to the clinic for their symptoms.[2] Besides the severity or duration of a symptom, specific concerns and expectations, as well as psychological factors, are important reasons patients seek health care for their somatic symptoms.[3,4]

While many patients presenting with physical symptoms either experience spontaneous recovery or respond to generic or disease-specific treatments, approximately 20% to 25% suffer from chronic or recurrent symptoms.[4,5] Also, physical symptoms frequently lack a medical explanation even after a thorough evaluation. Increasingly, the coexistence of common mental disorders such as depression and anxiety in patients with persistent, unexplained, or multiple somatic symptoms has been appreciated. The general topic of physical symptoms in medical patients has been covered in detail elsewhere.[4,6] The focus of this article is the strong linkage between physical symptoms and depression and the implications for clinical care.

PATIENT DEMOGRAPHICS AND SOMATIC SYMPTOMS

Gender is one of the strongest demographic influences on somatic symptom reporting.[7–10] Indeed, physical symptoms are 50% or more likely to be reported by women presenting for primary care than by men.[11] While the increased prevalence of depressive, anxiety, and somatoform disorders in women is one important risk factor,[12] a

variety of social, cultural, and biological gender differences may also contribute to increased somatic symptoms in women.[13,14]

Age is surprisingly not a major influence on symptom reporting. While community surveys suggest that certain symptoms are slightly more prevalent in older persons,[7,8] this does not appear to be the case for patients seen in clinical practice, where both the prevalence of individual symptoms and total symptom count in older patients are similar or, in some cases, lower than those seen in younger patients.[9–11,15] Possible explanations include age differences in the reasons for seeking care (e.g., older patients more commonly present for routine follow-up of stable medical conditions, whereas younger patients predominantly seek acute care for symptomatic problems), "normalization" of symptoms that may occur with aging, and a lower prevalence of depressive and anxiety disorders in older compared to younger primary care patients.[15]

The influence of race/ethnicity, education, income, and other cultural variables on somatic symptom reporting is less clear. For example, Zola[16] demonstrated symptom reporting differences between ethnic groups (Italian and Irish) in a small study in Boston in the early 1960s. In contrast, subsequent primary care studies involving larger samples and exploring a different variable (race) have shown that the 2 predominant groups evaluated (whites and blacks) are similar in somatic symptom reporting,[9–11] a finding confirmed in population-based studies.[8,17] The data on whether symptom reporting is higher in Hispanic populations are inconclusive.[18,19] A World Health Organization (WHO) study of more than 5400 primary care patients from 14 countries on 5 continents revealed some differences in symptom reporting among geographic centers, but the relative impact of differences in culture, health care systems, physician-patient communication, and economic/educational factors was difficult to disentangle.[20,21] What is consistently reported is a strong association between somatic symptom reporting and psychological distress that is similar across all cultures. Clearly, more research is needed to determine the independent effect of race, ethnicity, education, socioeconomic status, and other cultural factors on the experience and reporting of somatic symptoms.

SYMPTOMS AND SYMPTOM SYNDROMES

At least one third of somatic symptoms in primary care and population-based studies are "medically unexplained."[8,9,22–24] These symptoms exist in a group of patients in which the prevalence of depressive or anxiety disorders can be 50% or higher.[23] Similarly, medically unexplained symptoms are equally prevalent among patients referred to subspecialty clinics.[25]

Another common group of disorders is the functional somatic syndromes, such as irritable bowel syndrome, fibromyalgia, chronic fatigue syndrome, temporomandibular disorder, and the highly controversial multiple chemical sensitivity. The overlap among functional syndromes in terms of symptoms, functional impairment, psychiatric comorbidity, and response to generic treatments has been summarized by several authors.[26,27] Recently, Aaron and Buchwald[28] reviewed 53 studies that examined the co-occurrence of 2 or more syndromes in patient groups. The co-occurrence rate (overlap) was 35% to 70% for fibromyalgia and chronic fatigue syndrome, 32% to 80% for fibromyalgia and irritable bowel syndrome, 58% to 92% for chronic fatigue syndrome and irritable bowel syndrome, 33% to 55% for fibromyalgia and multiple chemical sensitivity, and 30% to 67% for chronic fatigue syndrome and multiple chemical sensitivity. The degree of overlap is not surprising considering that the prevalence of core symptoms (e.g., fatigue, sleep disturbances, musculoskeletal pains, headache, and gastrointestinal complaints) is high across all syndromes.[29] A meta-analysis of 244 studies has shown that depression and anxiety have a moderately strong association with common functional syndromes.[30]

DEPRESSION AND ANXIETY

Somatic Presentations Are the Rule

The majority (70% to 90%) of patients with depression or anxiety who present in primary care complain of somatic symptoms rather than volunteering psychological symptoms such as "I'm depressed," or "I've been feeling anxious." Analyzing 1146 primary care patients with major depression from the WHO international study, Simon and colleagues found that two thirds of depressed patients presented exclusively with somatic complaints, and half reported multiple, unexplained somatic symptoms.[31] Thus, somatization is the modal way that depressed patients present in primary care, regardless of culture. However, presenting in a somatic fashion was more common in centers characterized by a walk-in style of care, without scheduled appointments or ongoing patient-physician relationships, than in centers where patients were seen by established providers in a continuity-of-care relationship.

In a study of 497 primary care patients, Bridges and Goldberg[32] found that one third met criteria for a psychiatric disorder. Of the latter group, only 17% presented with psychological symptoms; 56%, with somatic symptoms; and 27%, with a primary medical disorder wherein the psychiatric disorder was a secondary, comorbid diagnosis. Physician recognition of the psychiatric disorder was highest (90%) in the patients who were "psychologizers," intermediate (50%) in the "somatizers," and lowest (20%) in those with medical comorbidity. In another study, Kirmayer and Robbins[33] found that the majority (73%) of primary care patients with depressive or anxiety disorders presented exclusively with somatic symptoms.

Figure 1. Prevalence of Pain (A) and Nonpain (B) Somatic Symptoms by Type of Depressive Disorder in 3000 Primary Care Patients[a]

A. Pain Somatic Symptoms

B. Nonpain Somatic Symptoms
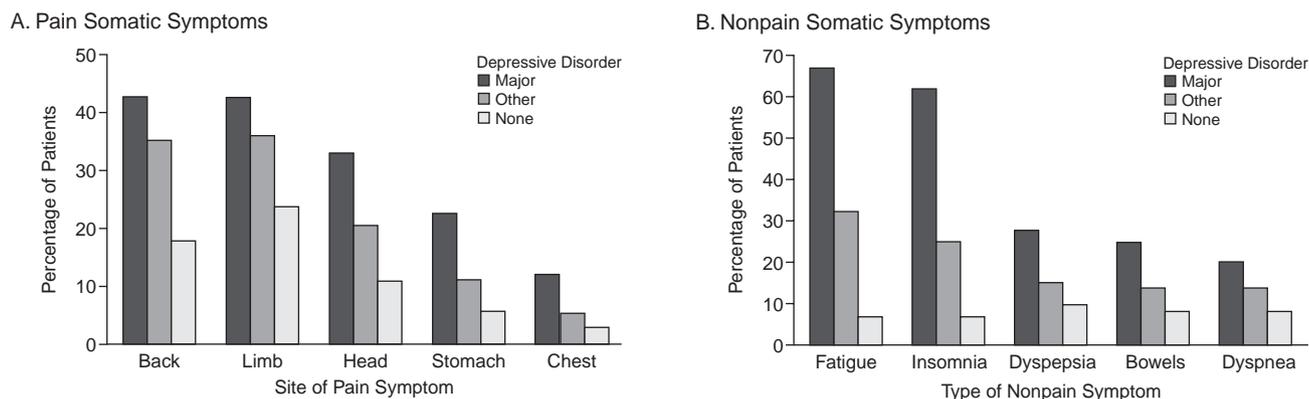
[a]R. L. Spritzer, M.D., K.K., unpublished data, November 1998.

The good news, however, is that most patients with a depressive or anxiety disorder will admit to psychological symptoms if specifically asked about them.[31,33–35] Denial of psychological symptoms occurs in less than 10% to 20% of patients who meet criteria for a DSM-IV depressive or anxiety disorder. Thus, while somatic symptoms may be the initial complaint, they also present an "opening" for the primary care clinician to inquire about co-existing psychological distress.

Predictors of Depression and Anxiety

Factors that increase the likelihood of a depressive or anxiety disorder in patients with somatic symptoms have recently been reviewed.[5] First, symptoms that remain medically unexplained after initial evaluation carry a higher risk of psychiatric comorbidity, regardless of the type of symptom. Up to two thirds of patients with medically unexplained symptoms have a depressive disorder, and 40% to 50% have an anxiety disorder.[23] Second, the total number of somatic symptoms is strongly associated with psychiatric comorbidity. Among patients with 0 to 1, 2 to 3, 4 to 5, 6 to 8, and 9 or more somatic symptoms, the prevalence of a coexisting depressive or anxiety disorder is 4%, 18%, 31%, 52%, and 78%, respectively, reflecting a powerful "dose-response" relationship between the physical and psychological symptoms and the likelihood of a concomitant depressive or anxiety disorder.[36] The risk of psychiatric comorbidity increases with both an increasing total somatic symptom count and an increasing medically unexplained symptom (MUS) count, though the threshold for the latter is lower.[23] In the WHO international study, a psychiatric disorder was present in only 4% of patients with no MUS, 18% of those with 1 to 4 MUS, and 69% of those with 5 or more MUS.[37]

Third, somatic symptoms increase in prevalence with increasing severity of psychological distress. Figure 1 summarizes previously unpublished data from a mental health survey of 3000 primary care patients,[38] demonstrating that the prevalence of individual pain and nonpain somatic symptoms is highest in those with major depressive disorder, intermediate in those with other depressive disorders (principally dysthymia and minor depression), and lowest in those with no depressive disorder. Not surprisingly, fatigue and insomnia have the strongest association since they are 2 of the 9 core criteria for DSM-IV mood disorders. However, notice the strong relationship between pain symptoms and depression, leading some to argue that pain should be added as a tenth criterion for DSM-IV mood disorders.

Several other predictors of depression and anxiety, known as the "S4" model, have been verified in 3 separate studies.[36,39,40] One predictor—a high somatic symptom count—has already been described. The other 3 predictors are recent stress, low self-rated health, and high severity of the patient's presenting somatic symptom. Operationally, these are defined as (1) recent stress (yes/no); (2) symptom count greater than 5 on checklist of 15 common somatic symptoms; (3) self-rated overall health of poor or fair on a 5-point scale (excellent, very good, good, fair, poor); (4) self-rated severity of presenting somatic symptom of 6 or greater on a 0 (none) to 10 (unbearable) scale. The presence of any of these 4 predictors increases the odds of an underlying depressive or anxiety disorder at least 2- or 3-fold. Moreover, the effect is additive, with the pooled prevalence of a depressive or anxiety disorder being only 5% in patients with no S4 predictor, 17% in those with 1 predictor, 41% in those with 2 predictors, 70% in those with 3 predictors, and 94% in those with all 4 predictors.[5]

The clinician's perception that the patient encounter is difficult is also a surprisingly good predictor of comorbid depression or anxiety. About 1 of every 6 outpatient visits

Table 1. Prevalence of Depression in Patients Referred to Subspecialty Clinics and Association With Reduced Likelihood of Organic Diagnosis for Symptoms[a]

Specialty Clinic[b]	Patients (N)	Prevalence of Depression	Odds of Organic Diagnosis if Depressed
Neurology	433	32%	0.29
Gastroenterology	116	29%	0.28
Rheumatology	185	25%	0.24

[a]Data from O'Malley et al.[51,52] and Ekstrand et al.[53]
[b]For neurology and rheumatology studies, patients are consecutive referrals. For gastroenterology study, patients are consecutive patients undergoing upper endoscopy for abdominal symptoms.

is considered difficult by the primary care physician, and patients whose visits are rated as difficult are 2 to 3 times more likely to have a depressive or anxiety disorder.[41,42] Also, difficult encounters are strongly associated with medically unexplained symptoms as well as high somatic symptom counts. Physicians' attitudes toward caring for patients with psychosocial problems may be one potentially modifiable factor: physicians with poor attitudes find 23% of their patient visits difficult, while physicians who feel more positive about evaluating and managing psychosocial problems find only 8% of their patient visits difficult.[42] Since having a high case mix of complex psychosocial problems is associated with career dissatisfaction among primary care physicians,[43] improving physician training in managing depression, anxiety, and other mental disorders may be valuable for both improved care of patients with somatic complaints and diminished physician frustration.

Screening for Mental Disorders

The U.S. Preventive Services Task Force recommends periodic screening for depression, provided that systems are in place to adequately monitor and adjust therapy.[44] However, the large volume of patients seen in primary care, short visit times, and other "competing demands" make it impractical to screen every single patient.[45,46] A case-finding approach, in which patients at greater risk are selectively evaluated, is an attractive alternative. A single question about depressed mood identifies 85% to 90% of patients with major depressive disorder, and a second question about anhedonia may increase the sensitivity to 95%.[34,35] The 2-question screen has been validated in large outpatient samples.[47] Patients who screen positive can have the severity of their depression graded with any number of simple instruments. The Patient Health Questionnaire depression module (PHQ-9) is one popular diagnostic and severity measure,[48] but many others are also available.[49,50]

Depression screening is also warranted in patients with persistent or unexplained somatic symptoms seen in subspecialty clinics. As shown in Table 1, patients newly referred to gastroenterology, rheumatology, and neurology clinics have a 25% to 30% prevalence of depression.[51–53]

Furthermore, depressed patients were only one fourth as likely to have a physical disorder diagnosed by the subspecialist. Thus, depression screening may be more cost-effective than many of the expensive diagnostic tests and procedures often ordered in patients with persistent and unexplained somatic symptoms.

OTHER ADVERSE HEALTH CONSEQUENCES OF SOMATIC SYMPTOMS

Several adverse consequences of somatic symptoms have already been mentioned or implied. First, their high prevalence coupled with the substantial proportion that patients consider bothersome argues for their public health importance. Second, the attendant psychiatric comorbidity in a significant percentage of patients can make somatic symptoms doubly important. Third, their persistence or recurrence in 20% to 25% of patients makes somatic symptoms a common chronic disorder. Fourth, the fact that at least one third of somatic symptoms are medically unexplained leads to both patient and physician discontent, evidenced as "difficult" encounters and/or therapeutic nihilism. Indeed, somatic symptom treatment is frequently described as unsatisfactory.[10]

Two additional consequences are functional impairment and increased health care utilization. Stepwise decrements in health-related quality of life with increasing somatic symptom counts and severity have been well described across multiple domains of physical, mental, social, and work functioning.[54–56] Indeed, there is a strong effect of somatic symptoms that is comparable to and independent of depressive and anxiety disorders.[57] Several of these same studies, as well as others,[58] have also shown a strong relationship between somatization and excess health care utilization. The PHQ studies in 3000 primary care and 3000 obstetric-gynecology patients showed that the prevalence of patients with minimal, low, medium, and high levels of somatic symptom severity was 35%, 35%, 20%, and 10%, respectively.[59] Figure 2 illustrates the strong relationship between increasing somatic symptom severity with both disability days and clinic visits.[59]

PAIN: SPECIAL CONSIDERATIONS

Among somatic symptoms, pain deserves special consideration for a number of reasons. Pain complaints account for over half of all outpatient visits for somatic symptoms, including an estimated 25 million visits in the United States alone each year for back pain, 12.7 million visits for knee or hip pain, 12.3 million visits for abdominal pain, 9.6 million visits for headache, 8.4 million visits for chest pain, and 8.1 million visits for neck pain.[1] Nonopiate analgesics fail to provide adequate relief in many patients, and physician concerns about regulatory restrictions as well as risks of tolerance or addiction

Figure 2. Number of Self-Reported Disability Days (A) and Clinic Visits (B) in Past 3 Months by Level of Somatic Symptom Severity as Measured by the Patient Health Questionnaire-15[a]

[a]Data from Kroenke et al.[59]

Table 2. Stepped Care Approach to Somatic Symptoms in Primary Care[a]

Is the somatic symptom likely to be…	Clinician action might be…
Acutely serious? (< 5% of cases)	Expedited diagnostic workup
Minor/self-limited? (70%–75% of cases)	Address patient expectations Symptom-specific therapy Follow-up in 2–6 weeks
Chronic or recurrent? (20%–25% of cases)	Screen for depression and anxiety
Caused or aggravated by a depressive or anxiety disorder?	Antidepressant therapy and/or cognitive-behavioral therapy (CBT)
Due to a functional somatic syndrome?	Syndrome-specific therapy Antidepressant therapy and/or CBT
Persistent and medically unexplained?	Regular, time-limited clinic visits Consider mental health referral Symptom management strategies, if evidence-based (eg, behavioral treatments, pain self-management programs, pain or other specialty clinics, complementary and alternative medicine) Rehabilitative rather than disability approach

[a]Adapted with permission from Kroenke.[5]

outcomes. The prevalence of pain in depressed patients and its adverse impact on treatment response suggests that attention to both pain and depressive symptoms from the outset of therapy may be necessary to optimize patient outcomes.

MANAGING SOMATIC SYMPTOMS

A stepped care approach to managing somatic symptoms in primary care is outlined in Table 2. Described in more detail elsewhere,[5] the steps are briefly summarized below.

Step 1

There are certain symptoms that are occasionally acutely serious (chest pain, dyspnea, new abdominal pain), and others that are seldom acutely serious (back pain, headache, fatigue, dizziness). The presence or absence of other "red flags" on history or physical examination typically dictates whether immediate diagnostic evaluation is warranted. For the majority of primary care patients with somatic symptoms, a focused history and physical examination provide most of the diagnostic and prognostic information.[4] Follow-up is preferable to an initial and expensive work-up; a 2- to 6-week "waiting period" can clarify whether the symptom will be self-limited or persistent. The fear of missing an occult but serious medical diagnosis is greatly overestimated. Studies of both specific physical symptoms as well as somatic symptoms in general have shown that the physician's initial judgment is quite

restrict the prescribing of narcotic analgesics for non-cancer pain. At the same time, clinicians are being pressured to provide more optimal pain management, with some national organizations (e.g., Joint Commission for Accreditation of Healthcare Organizations and the Veterans Administration) requiring routine measurement of pain as the "fifth vital sign." Persistent pain may lead to excessive surgery or other expensive or invasive procedures and is also the leading reason for use of complementary and alternative medicine. Pain is also among the leading causes of temporary as well as permanent work disability. Multidisciplinary pain clinics may not be widely accessible or consistently reimbursed by payers.

There is a close affiliation between pain and depression. Over half of depressed patients suffer from pain, and more than a quarter of pain patients report significant depression.[60] Moreover, pain is a risk factor for poor treatment response in depression. Not only is pain prevalent at the start of treatment in many depressed patients, it frequently persists even with antidepressant therapy.[61] Also, baseline pain severity is a predictor of worse depression

Figure 3. Three Potential Mechanisms for Explaining the Association Between Psychological and Physical Symptoms
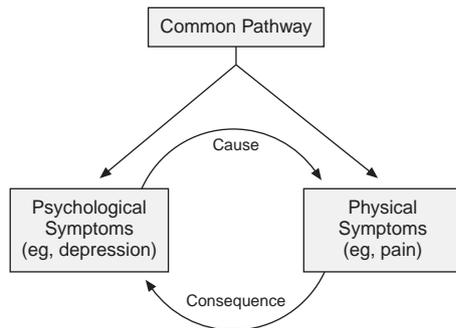
accurate, and that serious diseases thought unlikely at the index visit rarely emerge with long-term follow-up.[24,62]

In lieu of costly testing or referral, there are several things the physician can do at the index visit. Reassurance itself may be therapeutic in some patients.[63] A more targeted type of reassurance is to identify and address the patient's symptom-specific concerns and expectations, which commonly include an explanation of the symptom's cause and prognosis, as well as desires for specific physician actions such as medication prescribing, test ordering, subspecialty referral, or administrative actions. Studies have shown that addressing such expectations is both efficient and effective.[3,64,65] Two simple questions are: "Was there anything else you were worried about?" "Was there anything else you thought might be helpful?" There are also pharmacologic and nonpharmacologic therapies that can be provided for certain types of somatic symptoms in patients whose symptoms have been particularly bothersome, such as simple analgesics for pain, acid suppressants for dyspepsia, gentle bowel medications for constipation, sleep hygiene for insomnia, exercise for back pain and fatigue, and habituation exercises or meclizine for vertigo.

Step 2

Screening for depression and anxiety is certainly warranted in those patients whose somatic symptoms persist at a 2- to 6-week follow-up and in whom a specific, treatable medical diagnosis has not been established. In fact, psychological screening may be warranted at the index visit for those patients in whom the predictors described earlier in this article are present.

Should a depressive or anxiety disorder be diagnosed, antidepressants as well as psychotherapy, alone or in combination, are effective treatments. One critical step is discussing the linkage between physical and psychological symptoms in a manner acceptable to the patient so as to minimize the risk of the patient feeling dismissed (e.g., "The doctor thinks the symptoms are all in my head"). In fact, Figure 3 illustrates 3 potential explanations for the

linkage—psychological symptoms could be a cause of the physical symptoms or a consequence, or both types of symptoms may be products of a common pathway (neurotransmitters, other biological or physiologic stimuli, cognitive and coping styles, amplification or attentional factors). When the clinician is uncertain about which mechanism is responsible for the co-occurrence of physical and psychological symptoms, eliciting the individual patient's beliefs and developing a strategy for symptom management that is integrative rather than dualistic (mind vs. body) is desirable.

Antidepressants are also effective for a number of functional somatic syndromes. A series of meta-analyses has recently documented the efficacy of antidepressants in patients with irritable bowel syndrome, fibromyalgia, migraine and tension headache, low back pain, and several other somatic symptoms or syndromes.[66–70] Moreover, antidepressants may have an independent effect on somatic symptoms not entirely mediated by improvement in depression.[66] Since the majority of trials have been conducted with tricyclic antidepressants, the efficacy of other antidepressants for somatic syndromes is less clear. Although conclusive data are lacking, it does appear that tricyclics may be somewhat more effective for pain syndromes than selective serotonin reuptake inhibitors. There is preliminary evidence that dual-acting antidepressants that work on both norepinephrine and serotonin receptors may be beneficial in reducing pain,[71,72] though more clinical trials are needed.

Caveats regarding antidepressant treatment of functional somatic syndromes should also be acknowledged. Discontinuation rates may be higher because of these patients' heightened sensitivity to somatic side effects (a "nocebo" effect[73]) as well as causal attribution, which may be somatic, and rejection of anything that suggests a psychological etiology. Also, symptom reduction rather than total remission is the most common therapeutic response. Further, most trials have been short-term, and the long-term efficacy of antidepressants for the treatment of chronic somatic syndromes is not well established. Finally, since there are evidence-based nonpsychological treatments for some functional syndromes,[74,75] antidepressants can often be reserved as adjunctive rather than primary treatment.

Nonpharmacologic treatments are also effective for both pain and other functional somatic syndromes. Among psychological treatments, cognitive-behavioral therapy has the strongest evidence for efficacy, though relaxation therapy, reattribution training, self-management programs, and other behavioral treatments may be effective for some conditions.[76–81]

Step 3

Individuals with persistent somatic symptoms who fail to respond to the suggested treatment strategies represent a

heterogeneous group of patients. Etiologies may include (but are not limited to) somatoform disorders including somatization disorder and hypochondriasis; personality disorders; sexual or physical abuse; psychosocial reasons such as interpersonal conflict, job dissatisfaction, and disability or compensation seeking behavior; and opioid-dependent chronic pain. In addition to identifying these or other contributing factors, management includes regularly scheduled time-limited visits with a primary care physician; avoidance of unnecessary testing, procedures, and referrals; individual or group programs for self-management of and coping with chronic symptoms; and complementary medical therapies that are evidence-based for certain somatic symptoms (e.g., chiropractic, massage, and acupuncture for certain pain conditions).

CONCLUSION

Somatic symptoms account for more than half of all outpatient medical visits and are frequently accompanied by potentially treatable depressive or anxiety disorders. Certain clinical predictors may be useful as "red flags" in determining which patients are at highest risk of psychiatric comorbidity. At least a third of somatic symptoms are medically unexplained, and up to one quarter of somatic symptoms seen in primary care end up being chronic or recurrent. When physical and psychological symptoms coexist, adequate treatment of both may be necessary to optimize clinical outcomes. A stepped care approach may improve the care of patients with somatic symptoms, reduce health care costs, and enhance physician satisfaction.

Drug names: fluoxetine (Prozac and others), meclizine (Antivert and others), paroxetine (Paxil), sertraline (Zoloft).

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