REVIEW

Somatic Symptom Reporting in Women and Men

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Women report more intense, more numerous, and more frequent bodily symptoms than men. This difference appears in samples of medical patients and in community samples, whether or not gynecologic and reproductive symptoms are excluded, and whether all bodily symptoms or only those which are medically unexplained are examined. More limited, but suggestive, literature on experimental pain, symptom reporting in childhood, and pain thresholds in animals are compatible with these findings in adults. A number of contributory factors have been implicated, supported by varying degrees of evidence. These include innate differences in somatic and visceral perception; differences in symptom labeling, description, and reporting; the socialization process, which leads to differences in the readiness to acknowledge and disclose discomfort; a sex differential in the incidence of abuse and violence; sex differences in the prevalence of anxiety and depressive disorders; and gender bias in research and in clinical practice. General internists need to keep these factors in mind in obtaining the clinical history, understanding the meaning and significance that symptoms hold for each patient, and providing symptom relief.

KEY WORDS: **somatic symptoms; gender differences.**
J GEN INTERN MED 2001;16:266–275.

Women and men experience somatic symptoms, bodily distress, and physical health differently. In this paper, we review the empirical evidence regarding gender differences in symptoms, consider various explanations for these differences, and discuss their implications for clinical practice. Since all physical symptoms contain both somatic and psychological components, the distinction between "organic" and "functional" symptoms is theoretically unsound, arbitrary, and clinically impossible to establish. Accordingly, we will discuss somatic symptom reporting in general, including studies of symptoms which do and do not have a clearly demonstrable pathophysiologic correlate. The term sex is generally used to refer to biological characteristics differentiating males and females, while gender is used to refer to the socially allocated roles and expectations associated with sex, i.e., masculinity and femininity. In this review, however, we will use the terms interchangeably, as it is difficult to distinguish the biological and the social role aspects of somatic symptom reporting.

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METHODS

The MEDLINE and PsycInfo databases were searched for articles from 1966 through March 1999 that included any of the following MeSH terms: symptoms, somatoform disorders, pain, chronic illness, health behavior, and illness behavior combined with sex, sex differences, gender, gender role, and gender differences. The search was extended by using the bibliographies of selected, recent articles and systematic reviews. Articles were screened for relevance based on title, key words, and abstracts. Only English-language papers were included. The initial search identified approximately 450 articles. Cursory inspection of these led to the elimination of approximately 275 as insufficiently relevant or insufficiently scientific to warrant inclusion. The remaining 175 articles were then read and discussed by 2 of the 3 authors. If there was disagreement about whether to include the study in the review or how much emphasis to accord it, the third author read it, and we arrived at a consensus opinion. Although this literature was reviewed, analyzed, and synthesized, a formal meta-analysis was not conducted due to the broad scope of the subject and the wide variation in the types of articles reviewed. These included epidemiological and clinical studies, retrospective questionnaire surveys, laboratory experiments, review articles, and more speculative, conceptual articles. Articles were not strictly graded, but more weight was given to empirical research using rigorous instruments, larger and more broadly representative samples, standardized methods of symptom reporting, adjustment for confounding factors (such as sociodemographic characteristics and medical morbidity), more sophisticated data analytic methods, and an acknowledgment and discussion of the study limitations and generalizibility.

PREVALENCE OF SYMPTOMS

Women generally report more bodily distress and more numerous, more intense, and more frequent somatic symptoms than men. These differences emerge regardless of the time period inquired about, the response format used, and whether symptoms are recorded prospectively or

retrospectively.[1] The differences are seen in community samples, in medical patients, and from adolescence through old age.[1] These findings are outlined in Table 1. However, the interpretation of these findings is difficult because studies vary in the methods used to elicit and measure symptoms, in whether all bodily symptoms are included or only those which appear to be medically unexplained, and in whether confounding factors (such as social position or psychiatric disorder) are taken into account.

Nonpatient Populations

Large-scale surveys of community residents in the United States and elsewhere have found higher rates of somatic symptoms and lower levels of somatic well-being in women.[2–10] Thus, in population-based surveys, women are found to report more severe pain, more frequent pain, pain in more sites, and pain of longer duration than men.[2–5] This remains the case even after excluding gynecologic and reproductive symptoms. For example, Kroenke and Price[6] examined the lifetime prevalence of nonmenstrual complaints in a population sample of 13,538 community residents. Symptoms were elicited with a structured diagnostic interview, and classified by severity and probable cause. Twenty of the 22 most common symptoms were more frequent in women; in particular, constipation, nausea, vomiting, fainting, headache, fatigue, dizziness, palpitations, and insomnia. In an older study, Verbrugge and Ascione[7] asked a probability sample of community-dwelling adults to record symptoms daily in health diaries for 6 weeks. Women averaged 17.9 symptomatic days compared to 13.2 for men; the pattern of symptoms, however, was similar for men and women.[7] A small number of reports fail to find sex differences[8] in specific subpopulations such as college students[11] or particular racial or socioeconomic groups.[12]

Sex differences in symptom reporting appear in childhood, but this literature is inconsistent. Studies of pain sensitivity in 3- to 12-year-old children in general show girls to be more sensitive to pain.[13] Girls respond to pain more often by crying and require longer to calm after having received routine innoculations[14] and after minor playground accidents.[13] Other studies, however, have not found such sex differences in pain, for example following venipuncture.[15]

Medical Patients

There is extensive literature on symptom reporting in ambulatory medical populations. Here too, women generally report more symptoms, poorer perceived physical health, and less somatic well-being. For example, when the medical records of 1,000 patients followed over 3 years in an internal medicine clinic were examined, it was found that women on average reported 1.47 more symptoms than men.[16,17] Ten of 13 nongynecologic symptoms were significantly more common in women, on the order of 1.5 to 2 times more frequent.[17] When symptoms due to demonstrable disease were omitted from the analysis and only medically unexplained complaints studied, the gender differences persisted.[17] Hibbard and Pope[18] minimized the confounding effect of medical morbidity by including only healthy individuals and found that women patients scored significantly higher than men on an index of somatic symptoms. Gijsbers et al.[19] concluded that the higher prevalence of symptoms in women is reduced but not eliminated when gynecologic and obstetric conditions are excluded from the analyses.

A few other studies have attempted to take into account the possible confounding effect of a sex differential in the prevalence of medical disease. Among

Table 1. Gender Differences in Prevalence of Symptoms

Summary of Findings in Different Areas	References
Nonpatient populations	
Women report more numerous, more frequent, and more chronic symptoms than men.	2–10
Young girls may also report more symptoms than young boys.	13–15
Medical populations	
Women report more numerous symptoms.	16, 17
This differential persists after adjusting for medical comorbidity, psychiatric disorder, and gynecologic and reproductive symptoms.	17–22
Some studies of specific disease conditions show no difference in symptom reporting by gender, or higher reporting in men.	8, 25, 26
It is unclear if the particular constellation of symptoms resulting from specific medical disorders differs in men and women.	27–29
Experimental and laboratory studies	
Women have lower pain threshold and tolerance, but this differential may be small and is sensitive to experimental conditions.	3, 4, 30–32
This may be more attributable to a difference in reporting style than in discriminative ability.	31, 33–35
Female animals show more pronounced responses to experimental pain.	4, 19, 36–42
Somatoform disorders	
The prevalence of somatoform disorder is higher in women.	45–53
Hypochondriasis, however, is equally prevalent in men and women.	54–57

consecutive patients presenting with the symptoms of acute myocardial infarction or unstable angina, women had lower rates of clinically significant coronary artery disease; 30.5% of women and 13.9% of men with unstable angina did not have clinically significant stenosis.[20] Cunningham and Kelsey[21] found that while women had more musculoskeletal complaints than men, musculoskeletal disorder was equally prevalent in the 2 groups on physical examination. In a study of coronary heart disease patients, women had higher rates of anginal chest pain, even after stratification on the number of stenosed vessels.[22] Mechanic[23,24] reported that although self-reports of hypertension and heart disease were higher in women than men, medical evaluation revealed similar rates of hypertension. Conversely, several studies suggest that the sex differential diminishes when studying symptoms which are due to demonstrable disease. Among patients with upper respiratory tract infections, men's symptoms were judged more disproportionate to physician expectations of symptom severity than women's.[25] Symptoms in men and women were noted to be similar in colorectal cancer patients.[26] In another study, men with osteoarthritis were more likely to report pain, independent of severity of disease.[8]

There has been relatively little investigation of the important question of whether men and women manifest the same diseases with different symptoms. Women sustaining an acute myocardial infarction have been found to report more nausea and dyspnea, and less diaphoresis than men.[27] In acute appendicitis, men and women have been reported to present differing patterns of lower abdominal pain and rebound tenderness.[28] Migraine headaches are more often accompanied by an aura in men than in women.[29]

Experimental and Laboratory Studies

The experimental induction of pain in the laboratory can also be used to study sex differences. In general, women appear to have a lower threshold and tolerance for experimental pain, and to report more discomfort than men.[3,4,30–32] Although these findings are relatively consistent across studies, the sex differences are relatively small. In addition, the results may vary depending with the methods of pain induction and assessment,[3] and may be influenced by confounding factors such as motivation, the experimental setting and procedure, and the investigator's conduct.[3,4] Laboratory studies of pain are difficult to interpret but are valuable because when the results are subjected to a signal detection analysis, independent measures of discriminative acuity and of the tendency to describe or label all stimuli as painful (response bias) can be derived. Such signal detection analyses suggest that men and women differ more in their response bias than in their discriminative ability,[31,33–35] i.e., they differ more in their general tendency to describe and label their sensations as painful than in their ability to distinguish accurately between slight differences in the intensity of painful stimuli.

Animal studies generally seem to disclose sex differences in behavioral and physiological responses to noxious stimuli.[1,36] Female rodents, for example, exhibit a lower threshold for, and a more pronounced behavioral response to, acute and chronic experimentally induced pain.[37–40] Female rats also show less analgesia with morphine than males,[4,39,41,42] though these differences may vary depending upon the magnitude of the painful stimulus and the estrous cycle of the female rat.[39,43,44]

Somatoform Disorders

Medically unexplained symptoms are common in ambulatory medical patients, and are not necessarily psychopathological. Some patients, however, have medically unexplained symptoms that are so severe and intense, so disabling and disruptive, and so persistent and chronic that they are considered psychopathological and constitute a somatoform disorder. Such disorders are consistently more prevalent in women than in men,[45–51] and the paradigmatic somatoform disorder, termed somatization disorder, occurs up to 10 times more frequently in women.[47,52,53] Hypochondriasis is the major exception to this sex differential in somatoform disorders. Hypochondriasis, in which medically unexplained somatic symptoms are accompanied by the fear or belief that one has an undiagnosed disease, is equally prevalent in men and women.[17,18,54–57] This suggests that women's elevated somatic distress is not accompanied by greater disease fears and health anxiety.

FACTORS CONTRIBUTING TO SEX DIFFERENCES

Biological Differences

Neuroanatomical, neurophysiological, and neurobiological differences may give rise to differences in the perception, processing, and modulation of noxious somatic and visceral stimuli. Most of the work in this area has focused on pain perception. There may be sex differences in peripheral afferent pathways, in the central networks which integrate and process noxious sensation, and/or in the descending, efferent systems which modulate nociception.[31] Little is known at present about sex differences in afferent pathways,[31] but men and women may differ in the central processing of sensory information, in their pain regulatory systems[58] and in their autonomic and physiological response to pain and other noxious stimuli.[58] Thus, laboratory studies suggest that nociception may vary with the menstrual cycle. Women may be more sensitive to pain during the luteal phase,[59,60] though there are also reports of heightened pain sensitivity premenstrually, at ovulation, and immediately following menses.[31] Pain perception and inhibition appear to be influenced by γ-aminobutyric acid (GABA) (and other neurotransmitter) activity, and GABA

activity is hormonally dependent.[4] In addition, the endogenous opioid systems are modulated by estrogen and other sex hormones.[4,58]

Symptom Appraisal and Assessment

Women and men may label and describe the same noxious sensation differently. Women may be more aware of and more attentive to weak or diffuse bodily stimuli which men do not perceive,[61] and some studies suggest that women have greater bodily vigilance and awareness.[62,63] This could result from the experiences of menstruation, menopause, pregnancy, and lactation, which all serve to repeatedly call women's attention to their anatomy and physiology and to sensitize them to bodily changes.[64] It is also possible that men and women appraise and evaluate bodily discomfort differently, and differ in how readily they conclude that ambiguous or mild sensations are indicative of disease.[61] Thus, in one study, female college students were more likely to attribute a list of common somatic symptoms to serious disease than male students,[62] though a survey of ambulatory medical patients did not confirm such a gender difference.[65] Men and women may also differ in their recall of past medical experience, such that men forget past illness experiences more readily than women, and, in general, the differences in symptom reporting between men and women appear to be greater for past than for current symptoms.[1] Thus, Pennebaker[66] found that female college students recalled more somatic symptoms in the past month and past year than male students, but there were no differences when respondents were asked about current symptoms.[66] This sort of recall bias is also suggested by a study of chronic pain patients who kept daily ratings of pain intensity and also provided a week-long summary rating of pain at the end of the week.[67] Women summarized the previous week's pain experience as more intense than were the contemporaneous daily ratings made in real time, while men's retrospective recall and current ratings were less discrepant.[67]

Pennebaker, and Pennebaker and Roberts suggest that women use both external (e.g., situational information) and internal (somatic and visceral) cues in appraising bodily symptoms, while men rely more on internal cues.[68,69] He points out that under controlled laboratory conditions, men seem to be more accurate perceivers of heart rate,[70–72] stomach contractions,[73] systolic blood pressure,[74] blood glucose level,[75] and finger temperature.[66] However, in naturalistic studies conducted during daily life, no sex differences are evident in the accuracy of estimates of blood pressure, blood glucose, heart rhythm, and heart rate.[69,74–76] Pennebaker, and Pennebaker and Roberts suggest that when they move from the laboratory into naturalistic settings, women are able to use external cues unavailable to them in the experimental setting (such as prior activity and exercise, food consumption, time of day, and social feedback), which improves the accuracy of their bodily perception.[68,69]

Socialization and Social Roles

The socialization process, which begins in earliest childhood, may profoundly influence bodily experience and the willingness to disclose and communicate distress. Boys are taught to be less expressive about illness and discomfort, to be more stoical, and to use more denial.[77,78] Men may therefore be more reticent because they have been impressed with the importance of a "stiff upper lip," not crying or "acting like a baby," and ignoring pain and not admitting weakness, impairment, or distress.[64,79] Conversely, it may be more socially acceptable for women to openly acknowledge distress and pain.[19] Thus, men scoring higher on an inventory of masculinity had higher thresholds for experimental pain and were more stoical than men who had less masculine ratings.[80] In a study of male and female athletes and nonathletes undergoing a cold pressor test,[81] the female nonathletes were significantly more sensitive to the pain than the other 3 groups, but the female athletes were not.[81]

Socialization also influences the readiness or reluctance with which one consults a physician and assumes the patient role. Women generally have a lower threshold for seeking medical attention,[82,83] their per capita use of health services is significantly higher than men's, and they average significantly more physician visits per year.[19,84–89] This difference may be attributable, at least in part, to the socialization process, in which men and women are taught to deal differently with dependency and the disclosure of distress. Women may be more accepting of the dependency and passivity entailed in becoming a patient and visiting a doctor. Because they are more interpersonally oriented, and more affiliative and relational, women may find it easier to seek interpersonal help.[90] In addition, healthy, young women are encouraged to obtain annual gynecologic "check-ups" and to make routine, pregnancy-related visits. More frequent contact with doctors and more extensive medical care could in turn further sensitize women to bodily sensation and discomfort, heightening self-scrutiny and bodily vigilance which in turn could increase symptom reporting. More frequent medical contact does not entirely explain the higher prevalence of symptoms in women however, since, as noted earlier, population-based surveys of nonpatient populations find the same sex differential in symptom reporting.[6,17,91]

Abuse and Trauma

Physical and sexual abuse and domestic violence in childhood have been linked to the subsequent development of chronic pain (particularly pelvic pain) and a range of medically unexplained complaints in adulthood.[85,86,92–97] A history of sexual abuse in childhood is associated with an increased incidence in adulthood of pelvic, gynecologic, urologic, gastrointestinal, and pain complaints.[98–102] These findings emerge when surveying nonpatient populations,

and when comparing medical patients with functional disorders to patients matched for comparable organic diseases. Although the literature contains widely divergent estimates, the prevalence of childhood sexual abuse appears to be between 12% to 17% in girls and between 5% and 8% in boys.[103] Since sexual abuse is more common in girls, this may account for some of the increased prevalence of somatic symptoms in women.

Current physical abuse and interpersonal violence in adulthood is also vastly more common among women than men and is associated with increases in somatic symptoms and health care utilization.[104–108] The prevalence of currently experienced interpersonal violence among women in primary care practice varies between 6% and 29%, depending upon the study.[109–111] While comparable data for men are not available, women are 8 to 25 times more likely to be subject to interpersonal violence from an intimate partner than are men.[109,112] Such current, interpersonal violence obviously results in more acute trauma and injury, as well as in more chronic symptoms such as headaches, chronic pain, menstrual symptoms, sleep disorders, gastrointestinal symptoms, and more somatization.[104,105,109,113]

Depressive and Anxiety Disorders, and Generalized Psychological Distress

Depressive and anxiety disorders are 2 to 3 times more prevalent in women.[114–121] Although depressive and anxiety disorders may be diagnosed more readily in women than in men, the most careful and rigorous population-based, epidemiological surveys find a consistent sex differential which is thought to represent true prevalence rates.[122] Since these disorders often have prominent somatic features[123–126] and often go undetected and untreated by primary care physicians,[127–129] they likely contribute to the higher prevalence of somatic complaints in women. In addition, anxiety and depressive disorders may assume a somatized guise more often in women than in men.[130] However, the differential prevalence rates of these psychiatric disorders do not entirely explain the sex differences in somatic symptoms in primary care patients: When the presence of depressive and anxiety disorder is controlled for statistically, the sex differential in symptom reporting declines, but remains significant.[17] However, in another study of primary care patients, the association between sex and somatic symptoms disappeared when a measure of psychiatric disorder was taken into account statistically.[131] This underscores the complexity of these relationships and points out that these causes are not mutually exclusive but rather are more likely to be interactive.

Women have higher levels of negative affectivity than men,[132,133] and this could also mediate the relationship between gender and somatic symptoms. Negative affectivity is a stable, enduring personality characteristic, the tendency to experience psychological distress in general and to report a broad array of psychiatric symptoms such as loneliness, anxiety, low self-esteem, and guilt. Since negative affectivity is highly correlated with somatic symptoms and bodily complaints,[134–136] and since this personality trait is more prominent in women,[132,133] it may account for some of the gender differences in somatic symptom reporting.

Gender Bias in Research and Clinical Practice

Some of the reported gender differences in symptoms may result from unacknowledged biases in epidemiological research and medical practice. Women may simply be more willing than men to reveal distress and health problems.[138] Survey research may be confounded by an interaction effect between the sex of the respondent and that of the interviewer such that respondents may confide more readily in an interviewer of the same sex, and most interviewers may be female.[138,139] In laboratory studies of pain, the sex of the experimenter may influence the subjects' pain response: Men may report less pain to a female than to a male experimenter,[140] though this effect is not found consistently.[2] Additionally, since positive findings are more likely to find their way into the literature than negative findings, gender differences are more likely to be emphasized and published than the absence of such differences.[2]

Gender bias in clinical practice may also contribute to reported differences in symptoms. To the extent that women patients more openly express emotional difficulties and psychosocial distress, they may be more readily viewed as emotionally disturbed, histrionic, or somatizing.[141] Clinicians may then be quicker to conclude that diffuse or nonspecific symptoms have no medical explanation in women, more likely to ascribe such symptoms to psychosocial causes,[142] and more ready to ascribe them to a somatoform disorder.[143] This in turn could result in less vigorous attempts to ascertain a medical basis for the complaints, and less serious consideration of all possible medical etiologies. For example, some studies indicate that women with chest pain receive less aggressive medical assessment than men.[144] Nurses may address pain differently in men and women, depending upon the nurses' opinions about gender differences in pain reporting.[145]

A summary of the factors contributing to gender differences in symptoms may be found in Table 2.

IMPLICATIONS FOR MEDICAL PRACTICE

Women appear to experience more numerous, more frequent, and more intense bodily symptoms than men. This seems to be the case whether one examines all symptoms, excludes gynecologic and reproductive symptoms, or restricts the inquiry to medically unexplained symptoms. The finding emerges when studying community residents, medical populations, and laboratory subjects, and a similar differential may exist in children and in animals. These generalizations obscure many exceptions,

Table 2. Factors Contributing to Gender Differences in Symptoms

Summary of Findings in Different Areas	References
Biological differences	
There may be differences in nociception.	31, 58
There may be differences in autonomic and physiological responses to pain.	4, 58
Symptom appraisal and assessment	
Women may have greater somatic awareness generally.	61–64
Women have greater recall of prior symptoms.	1, 66, 67
Women use more external cues in assessing somatic sensations.	68, 69
Socialization and social roles	
Men are socialized to be more stoical.	64, 77, 78, 79
Women are encouraged to acknowledge distress.	19, 80, 81
Men resist assuming sick role more than women.	19, 82–90
Abuse and trauma	
Childhood abuse is associated with greater symptom reporting in adulthood.	85, 86, 92–102
The incidence of abuse is higher in girls.	103
Current abuse is associated with greater symptom reporting.	104–109, 113
The incidence of current abuse higher in women.	110–113
Depressive and anxiety disorders, and generalized psychological distress	
Depressive and anxiety disorders more prevalent in women.	114–121
Self-reported, generalized psychological distress is greater in women.	132, 133
Gender bias	
There is evidence of gender bias in research.	137–140
There is evidence of gender bias in clinical practice.	141–144

complexities, and discrepancies in the phenomena being studied and the limitations and inadequacies of our studies. The gender differential is likely to be affected by ethnicity, race, upbringing, personality, medical history, and a myriad of factors that have barely been examined. However, an overview of this large and complex literature suggests at least 3 factors which contribute to differences between men and women. First, women have a higher prevalence of several common psychiatric disorders (particularly anxiety and depression) which themselves have prominent somatic features. Second, women have higher rates of current and past abuse and trauma, which in turn are associated with medical help-seeking and somatic symptom reporting. Third, women and men seem to differ in their thresholds for judging and considering a given sensation to be noxious, unpleasant, and bothersome—i.e., for labeling and describing the sensation as a symptom. This reporting bias may well result from powerful socialization forces which begin in childhood. The necessarily tentative nature of these conclusions underscores the need for further study. In particular, future efforts should explore the nature of the sex differential rather than its magnitude; it is particularly crucial to examine the ways in which common diseases manifest themselves differently in men and women. If the symptom presentations of men and women with the same disease differ, this has important implications for history taking and the diagnostic process.

How are clinicians to interpret these differences? The findings surveyed in this paper may be statistically significant, but what is their clinical significance? Population studies conceal vast interindividual variability, and the aggregated findings from large data sets can not be applied to any given patient. Although populations of men and women may differ on average, there is enormous overlap, and many individual men and women do not differ, or may even differ in a direction opposite to that of their gender as a whole. The clinician must therefore be careful in applying these generalizations to individual patients. Although these findings should never provide a rationale for suspecting the authenticity or credibility of a given patient's symptoms, or for taking their potential medical significance more lightly, they do have some clinical implications.

First, one should not conclude that women are over-reporters who dramatize and exaggerate trivial sensations and benign dysfunction; it can be equally concluded that men are insensitive perceivers and poor historians who ignore, suppress, or are unaware of much bodily experience. Indeed, as we have seen, some findings suggest that men forget more previous symptoms and illnesses than women do. Men's and women's styles of symptoms reporting are simply different.

Second, some patients may find it more difficult to relate their symptoms to clinicians of the opposite sex, and at times, the clinician may need to ask whether this poses a problem in telling their stories. Some men, for example, may need explicit encouragement to acknowledge the extent or severity of their distress to a female physician.

Third, this review serves to remind us that the symptoms physicians elicit from patients are sensitive to, and influenced by, many factors. The symptoms reported to a given physician on a given occasion may depend on the patient's reporting style, readiness or reluctance to disclose distress, history of trauma, and the circumstantial and social input the patient used in evaluating and appraising his/her symptoms, as well as on how the questions are asked and whether the symptoms asked about are current

or past. Symptoms may be thought of as a final common pathway, the end result of a number of disparate forces. These include not only organ pathology, but also learned illness behaviors, life stress, social and interpersonal communication patterns, and psychological distress. When somatic symptoms are disproportionate to demonstrable pathology, the physician should inquire about prior and current abuse and trauma, and should search for evidence of somatized anxiety and depressive disorder. It must be made clear to all patients that such factors are part of comprehensive medical care, are a legitimate subject for physician-patient dialog, and, when present, deserve an ambitious therapeutic response.

Fourth, the findings reported here point out the gender bias which can occur in clinical practice and clinical research. This review should serve to increase physicians' awareness of possible sources of gender bias as much as to increase their awareness of gender differences.

Finally, it is important to remember that symptoms have 2 distinct sorts of clinical significance. They are indicators of the onset or progression of a disease process and, as such, serve as guides in the physician's diagnostic search. However, symptoms are also significant in themselves because they are the substance of the patient's experience. As sources of distress and suffering, they deserve palliation in their own right, and they form the foundation of the therapeutic alliance, regardless of whatever diagnostic information they may contain. In this sense, women's tendency to higher levels of somatic distress means they may require more strenuous efforts at symptomatic treatment. (That this may be a particular problem is suggested by a study disclosing that while both female and male patients are undermedicated for pain, the gap is greater for women.[146]) It is the physician's task to ameliorate and assuage the distress of all patients; to the degree that women tend to have more such distress, the physician's responsibility is thereby increased.

This discussion also serves as a reminder that *all* symptoms are "real," and underscores the paramount clinical imperative to elicit, attend to, and understand the personal meaning and significance of each individual patient's symptoms.

Supported by research grant MH40487 from the National Institute of Mental Health. The authors would like to acknowledge the assistance of Beverly Woo, MD and Leonard M. Rubin, MD in reviewing the manuscript.

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