Gender Differences in the Reporting of Physical and Somatoform Symptoms

KURT KROENKE, MD AND ROBERT L. SPITZER, MD

Objective: Women have consistently been shown to report greater numbers of physical symptoms. Our aim in this study was to assess gender differences for specific symptoms and to assess how much of these differences were attributable to psychiatric comorbidity. *Method:* Data from the PRIME-MD 1000 study (1000 patients from four primary care sites evaluated with the Primary Care Evaluation of Mental Disorders interview) were analyzed to determine gender differences in the reporting of 13 common physical symptoms. The effect of gender on symptom reporting was assessed by multivariate analysis, adjusting for depressive and anxiety disorders as well as age, race, education, and medical comorbidity. *Results:* All symptoms except one were reported more commonly by women, with the adjusted odds ratios (typically in the 1.5–2.5 range) showing statistically significant differences for 10 of 13 symptoms. Somatoform (ie, physically unexplained) symptoms were also more frequent in women. Although depressive and anxiety disorders were the strongest correlate of symptom reporting, gender had an independent effect that persisted even after adjusting for psychiatric comorbidity. Gender was the most important demographic factor associated with symptom reporting, followed by education. *Conclusions:* Most physical symptoms are typically reported at least 50% more often by women than by men. Although mental disorders are also more prevalent in women, gender influences symptom reporting in patients whether or not there is psychiatric comorbidity. **Key words:** somatization, gender, depression, anxiety, prevalence.

PRIME-MD = Primary Care Evaluation of Mental Disorders; PQ = patient questionnaire; CEG = Clinician Evaluation Guide.

INTRODUCTION

Symptoms such as back pain, headache, gastrointestinal disturbances, musculoskeletal pain, fatigue, dizziness, and other physical complaints are the leading reason for outpatient visits and are associated with substantial disability and health care utilization (1–4). Because the cause and treatment of such complaints is less clearcut than well-defined diseases (2–4), clinicians find the evaluation and management of physical symptoms particularly challenging and difficult (5–7). Women have consistently been shown to report symptoms more frequently than men. Theories to account for this gender difference include physiological, sociocultural, and psychological explanations (8–10).

Previous studies evaluating gender differences in symptom reporting have had several limitations. First, some studies have focused on persons residing in the general population rather than those seeking health care, making it more difficult to be certain what proportion of symptoms were, in fact, significant clinically (11–13). Second, the extensive literature on somatization disorder (14–16)—a chronic mental disorder occurring predominantly in women and characterized by large numbers of unexplained symptoms, substantial impairment, and excessive health care utilization—is not generalizable to the majority of symptomatic patients in primary care. Third, researchers often analyze total symptom counts without providing details on individual symptoms, so it is unclear whether women are more likely to report all or most symptoms or only certain specific symptoms.

Fourth and most importantly, few studies have adequately controlled for patient characteristics and, in particular, psychiatric comorbidity. Depressive and anxiety disorders are not only more prevalent in women (14, 17), but are strongly associated with increased reporting of physical symptoms (2, 7, 18). Failure to adjust for this potent confounder weakens conclusions about the independent effect of gender on symptom reporting.

The burden of physical symptoms in primary care coupled with their excess prevalence among women makes additional understanding of gender differences an important issue in women's health. In this paper, we analyze data from a large mental health survey conducted in four primary care clinics to answer several questions:

1. What are the differences between women and men in their reporting of the most common symptoms seen in primary care?
2. Are gender differences restricted to certain symptoms or "generic" across most types of symptoms?
3. Are gender differences similar for the subset of physical symptoms that are medically unexplained?
4. What is the independent effect of gender on symptom reporting, controlling not only for demographic characteristics, but also current depressive and anxiety disorders?

METHODS

PRIME-MD 1000 Study

Data was analyzed from the PRIME-MD 1000 study, a mental health survey of 1000 patients in four primary care sites (hospital-based group practice in Boston; city hospital clinic in New York; general medicine clinic serving military beneficiaries in Washington DC; and family practice clinic in Mobile). Of the 1360 patients presenting for medical care who were approached, 1000 enrolled in the study and provided complete data. Reasons for nonparticipation included previous evaluation with PRIME-MD (N = 109), not providing informed consent (N = 89), inability to speak English (N = 81), too ill (N = 53) and other (N = 28). The first 369 patients were selected by convenience but independently of the participating physicians' knowing that a patient had psychopathology, whereas the remaining 631 patients were selected using site-specific methods to avoid sampling bias. Within each site, the convenience sample and the consecutive or randomly selected sample did not differ significantly in terms of age, sex, ethnicity, education, functional status, or frequency of PRIME-MD diagnoses. Medical comorbidity was assessed by asking the patient's physician to note the presence of nine types of general medical disorders: hypertension, diabetes, arthritis, heart disease, pulmonary disease, renal disease, liver disease, cancer, and other diseases. Details of the PRIME-MD study including patient sampling procedures have been previously described (19). The study protocol was approved by the institutional review boards of each site, and each patient gave signed, informed consent.

All subjects were evaluated with PRIME-MD, a validated diag-

From the Regenstrief Institute for Health Care and Department of Medicine, Indiana University School of Medicine, Indianapolis, Indiana (K.K.); Biometrics Research Department, New York State Psychiatric Institute and the Department of Psychiatry, Columbia University, New York, New York (R.L.S.).

Address reprint requests to: Kurt Kroenke, MD, Regenstrief Institute for Health Care, 1001 West 10th Street, RG-6, Indianapolis, IN 46202.

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nostic interview that consists of a 26-item self-administered patient questionnaire (PQ) and an accompanying clinician evaluation guide (CEG) (19). Criteria-based DSM III-R diagnoses were made in five categories: depressive, anxiety, somatoform, alcohol, and eating. In the validation study, 431 of the 1000 patients underwent a semistructured telephone reinterview by a mental health professional who was blinded to the results of the PRIME-MD interview that had been completed within the past 48 hours or less. The reinterviewed patients were similar to patients not reinterviewed in terms of demographic profile, functional status, and frequency of psychiatric diagnoses. Agreement between PRIME-MD and telephone reinterview diagnoses for depressive and anxiety disorders was satisfactory (kappa of 0.61 and 0.55, respectively) and approximates the levels of agreement among mental health professionals using diagnostic interview schedules (20, 21). Construct validity of the instrument was supported additionally by strong associations between PRIME-MD psychiatric diagnoses and functional status measures, health care utilization, and validated self-rated psychiatric symptom severity scales (19).

The somatoform section of the PQ inquires about 15 physical symptoms or symptom clusters that account for over 90% of physical complaints (excluding upper respiratory symptoms) reported in the outpatient setting (1–3). These 15 symptoms are: stomach pain, back pain, headache, chest pain, dizziness, fainting, palpitations, shortness of breath, bowel complaints (constipation or diarrhea), dyspeptic complaints (nausea, gas, or indigestion), fatigue, trouble sleeping, pain in joints or limbs, menstrual pain or problems, and pain or problems during sexual intercourse. For this study, fainting (because of its low prevalence) and menstrual symptoms (which occur only in women) are excluded from the analysis.

The symptoms are prefaced in the PQ by the query: "During the *past month*, have you been bothered *a lot* by . . . Stomach pain? Back pain? . . ." In the original study, clinicians entered the CEG somatoform module for any patient who endorsed three or more physical symptoms on the PQ. In the CEG, the clinician is asked to decide: "Based on your clinical judgment, does the symptom have a physical explanation that is adequate to explain its severity and associated disability?" Symptoms for which the clinician answered "No" were classified as *somatoform*. An important exception is that if the patient meets criteria for a depressive or anxiety disorder, symptoms explicitly part of the diagnostic criteria for that disorder (eg, fatigue or insomnia for a depressive disorder; cardiopulmonary or gastrointestinal symptoms for panic disorder) are not counted as somatoform. In summary, it was the patient's own physician (ie, the one administering the PRIME-MD interview) who made the final decision as to whether a particular symptom was classified as somatoform.

Statistical Analysis

For both individual symptoms and symptom counts, two dependent variables were analyzed: all physical symptoms and somatoform symptoms. In assessing headache, for example, the first analysis would include all patients reporting headache, whereas the second analysis would include only those with medically unexplained headaches. Chi-square analysis was used to assess the univariate relationship between gender and reporting of the 13 physical symptoms. Logistic regression analysis was used to determine the independent effect of gender of symptom reporting. Odds ratios were adjusted for each symptom in two steps: the first controlled for age, race, education, and medical comorbidity (expressed as the number of general medical disorders); the second controlled for these factors plus depressive and anxiety disorders (each represented by a binary variable coding the disorder as present or absent). This allowed us to assess (by change in odds ratio) how much the gender effects were due to psychiatric comorbidity. The effect of gender on somatoform symptoms was also assessed by using the same logistic regression procedure.

Multivariate linear regression was used to determine the effect of gender on total symptom counts. Variables were entered stepwise in three groups: 1) sex, age, education, and race; 2) medical comorbidity; 3) psychiatric comorbidity, ie, presence of depressive and anxiety disorders. Finally, to examine for the possibility of interaction between gender and psychiatric comorbidity, a three-factor analysis of variance was performed with number of physical symptoms as the dependent variable and sex, depressive disorder, and anxiety disorder as the three independent variables.

RESULTS

Patient Characteristics

Patients had a mean age of 55 years (range, 18–91); 60% were women, 58% were white, and 28% were college graduates. Compared with men, there were more minority (nonwhite) women (48% vs 34%, $p < .0001$) and fewer with college degrees (21% vs 39%, $p < .0001$). There were no gender differences in terms of age or number of chronic medical disorders. The most common comorbid medical conditions were hypertension (48% of all patients), arthritis (23%), diabetes (17%), and cardiac disease (15%). The number of types of current medical disorders was none in 18% of the patients, one in 34%, two in 29%, three in 14%, and four or more in 5%. A DSM-III-R psychiatric diagnosis was present in 26% of the patients, and an additional 13% had a subthreshold diagnosis. Depressive and anxiety disorders were present in 26% and 18% of the patients, respectively.

Individual Symptoms

Table 1 summarizes the frequency of physical symptoms according to gender. The first columns displaying all symptoms (both physically explained and somatoform) show that every symptom except one is more prevalent in women. Ten of the 13 symptoms are significantly more common in women, with most of these differences being highly significant ($p < .001$). Only abdominal pain and chest pain have a similar frequency among women and men, and the sexual symptom ("pain or problems during sexual intercourse") is the single symptom noted more commonly by men.

Somatoform symptoms were also significantly more frequent in women (second set of columns in Table 1). We also determined for each symptom how often clinicians judged the symptom to be somatoform. Each symptom, except sexual problems, was more likely to be considered somatoform in women than in men, with the greatest differences being for abdominal pain (24% vs 17%), back pain (19% vs 11%), bowel complaints (27% vs 16%), chest pain (29% vs 25%), dizziness (30% vs 22%), dyspnea (22% vs 13%), headache (34% vs 22%), joint or limb pain (15% vs 8%), and nausea or indigestion (26% vs 19%).

Table 2 displays the likelihood of each symptom being reported by women compared with men. Odds ratios are presented in two ways: 1) *adjusted* for age, race, education, and number of general medical disorders; 2) *psychiatric-adjusted*, ie, adjusting for these same variables, plus the presence of depressive and anxiety disorders. These odds ratios are presented both for all physical symptoms (eg, all patients with headache) and somatoform symptoms (ie, only those patients whose headache is medically unexplained). Similar to the univariate analysis results (Table 1), the odds ratios in Table 2 demonstrate that most physical symptoms are more common in women, usually on the order of one and a half to two times more likely. Furthermore, adjusting for psychiatric comorbidity only slightly altered the odds ratios. Adding depressive and anxiety disorders to the logistic regres-

TABLE 1. Frequency of Physical Symptoms by Gender in 1000 Primary Care Patients

Symptom	All Physical Symptoms			Somatoform Symptoms		
	Women (N = 569)	Men (N = 385)	p	Women (N = 532)	Men (N = 358)	p
	(% of patients reporting symptom)					
Abdominal pain	21.1	17.9	.23	5.1	3.1	.15
Back pain	46.4	33.8	.0001	8.9	3.6	.002
Bowel complaints	33.2	22.9	.0005	8.9	3.7	.002
Chest pain	23.0	18.4	.09	6.6	4.5	.18
Dizziness	28.8	15.8	<.00001	8.7	3.4	.002
Dyspnea	36.2	24.7	.0002	8.1	3.1	.002
Headache	46.2	22.1	<.00001	15.6	4.8	<.00001
Fatigue	66.8	45.2	<.00001	12.7	8.1	.03
Insomnia	38.3	26.8	.0002	6.9	4.5	.14
Joint or limb pain	65.2	49.4	<.00001	9.8	3.9	.001
Nausea/indigestion	48.3	37.4	.0009	12.7	7.0	.007
Palpitations	32.7	19.2	<.00001	8.9	5.3	.047
Sexual problems	4.7	9.1	.008	1.1	2.2	.19

TABLE 2. Increased Likelihood of Physical Symptoms in Women

Symptom	All Physical Symptoms		Somatoform Symptoms	
	Adjusted Odds Ratio (95% CI)[a]	Psychiatric-Adjusted Odds Ratio (95% CI)[b]	Adjusted Odds Ratio (95% CI)[a]	Psychiatric-Adjusted Odds Ratio (95% CI)[b]
Headache	2.8 (2.1,3.9)	2.6 (1.9,3.7)	3.6 (2.0,6 6)	3.2 (1.5,5.9)
Fatigue	2.3 (1.7,3.0)	2.1 (1.5,2.8)	1.8 (1.1,3.0)	1.7 (1.0,2.8)
Dizziness	2.0 (1.4,2.9)	1.8 (1.3,2.6)	2.7 (1.3,5.5)	2.2 (1.1,4.7)
Joint or limb pain	1.8 (1.4,2.5)	1.7 (1.2,2.2)	2.3 (1.2,4.4)	1.8 (0.9,3.5)
Palpitations	1.9 (1.3,2.6)	1.7 (1.2,2.4)	1.4 (0.8,2.5)	1.1 (0.6,2.1)
Dyspnea	1.8 (1.2,2.4)	1.6 (1.1,2.2)	3.1 (1.5,6.2)	2.6 (1.2,5.4)
Back pain	1.7 (1.3,2.3)	1.5 (1.1,2.1)	2.2 (1.1,4.4)	1.9 (1.0,3.8)
Bowel complaints	1.6 (1.2,2.2)	1.5 (1.1,2.1)	2.3 (1.2,4.4)	2.0 (1.0,3.8)
Insomnia	1.6 (1.2,2.2)	1.3 (0.9,1.9)	1.6 (0.8,3.1)	1.4 (0.7,2.7)
Nausea/indigestion	1.5 (1.1,2.0)	1.4 (1.0,1.8)	1.6 (1.0,2.7)	1.4 (0.8,2.4)
Chest pain	1.2 (0.9,1.8)	1.1 (0.8,1.6)	1.3 (0.7,2.5)	1.0 (0.5,2.0)
Abdominal pain	1.1 (0.8,1.6)	1.0 (0.7,1.4)	1.1 (0.5,2.4)	0.9 (0.4,2.0)
Sexual problems	0.5 (0.3,0.8)	0.4 (0.3,0.8)	0.4 (0.1,1.3)	0.3 (0.1,1.1)

[a] Adjusted odds ratios are adjusted for age, race, education, and number of general medical disorders.
[b] Psychiatric-adjusted odds ratios are adjusted for above factors, plus depressive and anxiety disorders.

sion model typically lowered the adjusted odds ratios only 0.1 to 0.2 (only one symptom changing by as much as 0.3).

The odds of reporting somatoform symptoms (second set of columns in Table 2) was also greater in women for most symptoms. Because the base rate of somatoform symptoms for both women and men is low, confidence intervals are wider and fewer of the adjusted odds ratios are statistically significant. Again, adjusting for psychiatric comorbidity only slightly lowered the odds ratios.

One question on the PRIME-MD questionnaire screens for hypochondriacal concerns by asking the patient: "Have you often been bothered by the thought that you have a serious undiagnosed disease." In responding to this item, women were not more likely to express serious illness worry (adjusted odds ratio 1.08; 95% CI, 0.7–1.7; p = .71).

Total Symptom Counts

Multivariable linear regression was performed to determine the independent effect of specific variables on symptom reporting. Although we stepped variables into the model in three groups, the addition of medical comorbidity in the second step did not significantly change the strength of association of the demographic variables entered in the first step in either the model for all physical symptoms or the model for somatoform symptoms. Therefore, in Table 3 we display the results of two models: Model 1 adjusts for demographic characteristics and medical comorbidity, and Model 2 further adjusts for psychiatric comorbidity. Three parameters are reported (22). The unstandardized regression coefficient, β, is a measure of the independent effect of a particular variable on symptom counts, controlling for all other variables. The standardized regression coefficient, *Beta* (which is β divided by the standard error of β), is one means of comparing variables with one another: those with a larger beta are typically stronger predictors. *Partial* R^2 is an estimate of the amount of variance in total symptom count that is explained by a variable.

Examining total symptom count first, the β for sex in Model 1 indicates that women on average report an additional 1.47 physical symptoms compared with men. Model 2 shows

TABLE 3. Predictors of Total Number of Physical Symptoms[a]

Variable	All Physical Symptoms[b]						Somatoform Symptoms[b]					
	Model 1			Model 2			Model 1			Model 2		
	β	Beta	Partial R^2	β	Beta	Partial R^2	β	Beta	Partial R^2	β	Beta	Partial R^2
Depressive disorder				2.54	.331	.237				0.83	.188	.030
Anxiety disorder				2.02	.231	.052				1.10	.222	.110
Female sex	1.47	.216	.067	1.10	.162	.031	0.54	.138	.026	0.43	.110	.011
Education	−0.56	.219	.042	−0.32	.125	.008	−0.18	.125	.012	ns	ns	ns
Medical comorbidity (no. diseases)	0.46	.165	.019	0.45	.159	.022	ns	ns	ns	ns	ns	ns
Age (in decades)	−0.35	.171	.008	−0.20	.096	.006	−0.17	.145	.009	−0.08	.070	.004

[a] All variables are significant at $p < .001$ except: age in Model 2 for all physical symptoms ($p = .003$) and for somatoform symptoms ($p = .03$), and variables listed as NS (ie, not significant).
[b] β and Beta are unstandardized and standardized regression coefficients, respectively. Model 1 includes sex, age, education, number of physical diseases, and race as independent variables. Model 2 includes these same variables, plus presence of depressive and anxiety disorders.

that psychiatric disorders have the strongest association with symptom reporting: the number of additional physical symptoms associated with a depressive or anxiety disorder is 2.54 and 2.02, respectively. However, female sex is still associated with 1.1 additional symptoms even after controlling for psychiatric comorbidity. The *partial* R^2 values in Model 1 show that gender accounts for 6.7% of the variance in symptom reporting; education, 4.2%; the number of medical disorders, 1.9%; and age, 0.8%. Although adding psychiatric disorders in Model 2 shows the substantial proportion of variance attributable to depressive (23.7%) and anxiety (5.7%) disorders, gender still accounts for more of the variance (3.1%) than the other nonpsychiatric variables. This is confirmed by examination of the standardized regression coefficients: psychiatric disorders have the largest beta, followed by gender.

Table 3 also shows the association between these same variables and the reporting of somatoform symptoms. Again, psychiatric disorders have the greatest effects, and gender continues to be the strongest nonpsychiatric predictor. The negative regression coefficients for age and education indicate that younger patients and those with less education tend to report more symptoms. Regarding somatoform symptoms, medical comorbidity does not have a significant effect in either Model 1 or Model 2, whereas the effect of education is no longer significant after adjusting for psychiatric comorbidity. Interestingly, anxiety disorders explain a greater proportion of the variance in somatoform symptom reporting than do depressive disorders (11% and 3%, respectively).

The only significant interaction between gender and psychiatric disorders was between gender and depressive disorders for predicting total physical symptom count. In this three-factor ANOVA, depressive disorders had the strongest association ($F = 71.8$, $p < .001$), followed by anxiety disorders ($F = 54.1$, $p < .001$), sex ($F = 18.0$, $p < .001$), and the interaction between sex and depressive disorders ($F = 5.0$, $p = .026$). There was no interaction between sex and anxiety disorders or between anxiety and depressive disorders in predicting total physical symptom count. Also, there were no significant interactions between any of the factors in the ANOVA where somatoform symptom count was the dependent variable.

Figure 1 illustrates the effects of gender and psychiatric disorders on total physical symptom reporting. The mean number of symptoms reported was significantly greater in women among patients with no disorder ($F = 40.05$, $p < .001$) and approached significance in those with only an anxiety disorder ($F = 3.16$, $p = .08$) and both an anxiety and depressive disorder ($F = 3.28$, $p = .07$). On the other hand, symptom counts were similar in men and women who had only a depressive disorder, confirming the interaction detected by ANOVA and suggesting that depressive disorders may have a greater influence on symptom reporting in men.

DISCUSSION

Our study has several important findings. First, increased symptom reporting in women is a generic phenomenon rather than one restricted to certain types of symptoms. Second, medically unexplained symptoms are also more common in women. Third, the effect of gender on symptom reporting is independent of psychiatric comorbidity.

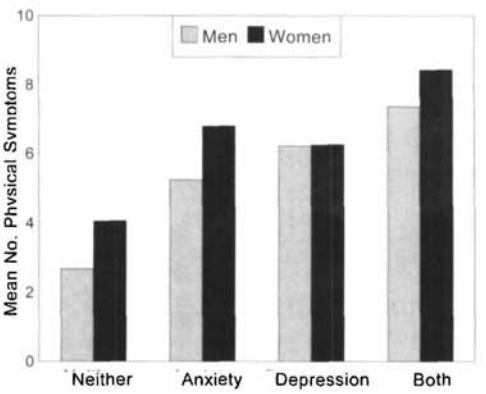

Figure 1. The number of men/women classified into four psychiatric disorder categories was: neither anxiety or depression, 296/358; anxiety only, 16/35; depression only, 40/86; and both anxiety and depression, 33/90. Gender differences were significant for neither ($F = 40.05$, $p < .001$) and approached significance for anxiety ($F = 3.16$, $p = .08$) and both ($F = 3.28$, $p = .07$).

Numerous theories supported by varying degrees of evidence have been proposed to account for increased symptom reporting in women (8–10). One difference may be at the physiological level: laboratory and field studies have shown that women are more sensitive to external environmental cues (including stress) and men to internal physiological stimuli in noticing, defining and reacting to physical symptoms (8, 23). Secondly, certain psychosocial factors more prevalent in women are strongly associated with symptom reporting, particularly depressive and anxiety disorders (2, 7, 17), as well as a history of sexual or physical abuse (24–26). Other psychosocial antecedents that have been postulated include cultural factors permitting less stoicism and greater expressiveness among women; amplification of somatic symptoms; a lower threshold for seeking health care; and gender differences in social roles and responsibilities (8–10, 27).

Although our study cannot address all of these theories, it is stronger than most previous studies in controlling for psychiatric comorbidity. Depressive and anxiety disorders clearly had the strongest association with symptom reporting, and adjusting for these disorders did reduce the effect of gender. Even after adjustment, however, gender effect remained significant and stronger than the effect of other demographic variables. Because depressive and anxiety disorders are both more prevalent in women and also powerful correlates of symptom reporting, the independent effect of gender is of particular interest.

Purported differences between women and men in their threshold for seeking care for minor illness is also unlikely to explain the gender differences in symptom reporting revealed in our sample. All subjects in the PRIME-MD 1000 study (women and men) were seeking health care, and there were no gender differences in age or medical comorbidity. Additionally, the findings in our clinic sample are complemented by two large population-based surveys where most symptoms were more prevalent in women (11, 12). Thus, results from clinical and community samples are consistent with and suggest that increased symptom reporting in women is not merely an artifact of higher health care utilization.

Although few patients (2%) in our sample met full diagnostic criteria for hypochondriasis, 14% responded affirmatively to the question: "During the past month, have you often been bothered by the thought that you have a serious undiagnosed disease?" The fact that similar proportions of women and men acknowledged serious illness worry suggests that gender-related differences in symptom reporting is not a consequence of excess illness worry among women. Previous studies have similarly shown a higher prevalence of somatization, but not hypochondriacal concerns in women (27, 28).

Women also had a higher prevalence of somatoform symptoms. Although some of this could simply be because of increased symptom reporting in general, the proportion of symptoms considered unexplained in women was also greater for most symptoms. Certainly, this is consistent with the extensive literature on gender differences in somatization and somatoform disorders (7, 8, 13–15, 27–29). Still, inasmuch as deciding that a symptom lacks an adequate physical explanation requires clinical judgment, clinicians and investigators alike must be careful to distinguish true differences from potential gender biases in labeling symptoms somatoform.

Consistent with the DSM-III-R (and DSM-IV) classification, physical symptoms that were specifically part of the diagnostic criteria for a depressive or anxiety disorder were not counted as somatoform in a particular patient if he or she met diagnostic criteria for that mental disorder. Because panic disorder was only diagnosed in a small proportion (4%) of patients, fatigue and insomnia (the PRIME-MD physical symptoms included in all depressive disorder criteria as well as generalized anxiety disorder) are the two symptoms that might have been substantively affected. Had these two symptoms been classified as somatoform even in the presence of a diagnosed depressive disorder or generalized anxiety disorder, the overall frequency of these symptoms (as well as gender differences) would not have changed, but more fatigue and insomnia would have been classified as somatoform.

Only 3 of 13 symptoms were not significantly more common in women. Women would not be expected to report chest pain more frequently, inasmuch as coronary artery disease is more prevalent in men (in our sample, cardiac disease was present in 21% of men vs 11% of women, $p = .0001$). The lack of differences regarding abdominal pain is more surprising because irritable bowel syndrome and other functional abdominal complaints have been reported as more prevalent in women. However, irritable bowel syndrome is a constellation of symptoms that includes bowel complaints as well as upper gastrointestinal symptoms such as bloating. Both the bowel complaint item (constipation or diarrhea) and the upper gastrointestinal symptom item (nausea, indigestion, or gas) on PRIME-MD were endorsed more commonly by women in our sample. It is possible that the lack of a gender difference for abdominal pain is a chance finding due to multiple statistical comparisons. Only pain or problems during sexual intercourse were more frequently reported by men. Whether this is due to a higher prevalence of sexual problems in men or underreporting of this particular symptom in women requires additional investigation.

The greater reporting of most symptoms, as well as unexplained symptoms, may account for the increased prevalence of functional syndromes among women, including irritable bowel syndrome, fibromyalgia, chronic fatigue syndrome, and migraine headache (8, 30, 31). These disorders are defined predominantly by symptoms for which the precise etiology and pathophysiology is yet to be established.

Depressive and anxiety disorders were both strongly associated with symptom reporting, yet differed in several respects. Depression had a greater effect on total symptom reporting while anxiety had a somewhat greater effect on the reporting of somatoform (ie, medically unexplained) symptoms. Second, the interaction between gender and depressive disorders (ie, men and women who only had depression reported a similar number of symptoms) did not exist between gender and anxiety disorders.

Our study has several limitations. Physical symptoms were measured by patient responses to a symptom checklist rather than limiting our analysis to spontaneously volunteered "chief complaints." Although this might inflate the true prevalence of clinically significant symptoms, we did ask patients to report only those that had bothered them *a lot*, and the same measure was used for women and men. Second, classification of a symptom as somatoform was done by the primary care clinician and we cannot exclude the possibility of gender bias in labeling symptoms somatoform. The extent to which bias actually exists in clinical practice is not well established and warrants further study. Furthermore, gender bias in research

may mean that women's health problems are less studied and less well understood, making it more likely that symptoms in women might be interpreted as "unexplained." Third, we were better able to study and control for certain explanatory variables (eg, demographic characteristics and psychiatric comorbidity) than for other potential sociocultural or biological mechanisms. Fourth, medical comorbidity was defined simply as the number of general medical conditions; although some epidemiologic studies have used this as an estimate of comorbidity (32), more sophisticated measures also factor in illness severity.

Physical symptoms play a prominent role in outpatient practice. The fact that gender is associated with both symptom prevalence as well as the likelihood that symptoms will be considered unexplained, make the evaluation and management of physical symptoms a particularly salient issue in women's health. Depressive and anxiety disorders alone do not account for increased symptom reporting in women. Continuing research is required to better explore the relative contributions of sociocultural factors, biological variables, sexual and physical abuse, and other potential etiologies.

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