

# Generalized Anxiety and Depression in Primary Care: Prevalence, Recognition, and Management

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**Aims:** Determine attitudes toward patients with generalized anxiety disorder (GAD) and major depressive episodes (MDE) in primary care; determine prevalence of GAD, MDE, and comorbid GAD/MDE among primary care patients; assess physician recognition of GAD and MDE; and describe primary care interventions for these patients. **Method:** 558 primary care physicians participated in a 1-day survey. Over 20,000 patients completed a diagnostic-screening questionnaire for GAD and MDE. Physician questionnaires included a standardized clinical appraisal of somatic and psychosocial symptoms and information on past and current treatments and a prestudy questionnaire assessing experience with and attitudes toward patients with GAD and MDE. **Results:** 56.9% of physicians viewed GAD as a genuine mental disorder with clinical management problems and considerable patient burden; 27.4% treated GAD patients differently from MDE patients. 5.3% of patients met criteria for GAD, 6.0% for MDE, 3.8% for pure GAD, 4.4% for pure MDE, and 1.6% for comorbid GAD/MDE. Pure GAD and MDE were associated with disability, high utilization of health care resources, and suicidality, which were even higher with comorbid GAD/MDE. Physicians recognized clinically significant emotional problems in 72.5% of patients with pure GAD, 76.5% with pure MDE, and 85.4% with comorbid GAD/MDE. However, correct diagnosis was much lower (64.3% for MDE and 34.4% for GAD). Although the majority of patients with recognized GAD or MDE were treated, only a small minority with GAD were prescribed medications or referred to specialists. **Conclusion:** The high proportion of respondents with pure GAD is inconsistent with previous reports that GAD is usually comorbid with depression. GAD remains poorly recognized and inadequately treated. Improving the recognition and treatment of GAD in primary care patients is discussed relative to new treatments. (*J Clin Psychiatry* 2002;63[suppl 8]:24–34)

A number of commentators in the past decade have noted that generalized anxiety disorder (GAD) and major depressive episode (MDE) are both commonly occurring and impairing disorders that are characterized by low rates of diagnosis and, among patients in treatment, by low rates of adequate treatment.<sup>1-4</sup> Much more attention has focused on the low rates of diagnosis and treatment of MDE than of GAD. Indeed, very few data are available

that provide up-to-date information on GAD in primary care. This difference can largely be traced to the introduction of selective serotonin reuptake inhibitors (SSRIs) and other modern antidepressant treatments for MDE since the late 1980s, which was accompanied by enormous media coverage that led to a large and sustained increase in the number of people seeking and receiving treatment for MDE.<sup>5</sup> A number of widely reported studies evaluating the effectiveness of treatment for MDE showed several outcomes: (1) a substantial proportion of primary care patients are depressed, (2) approximately 50% of primary care patients with MDE go undetected by their physician, (3) outreach and screening efforts can lead to the detection of these cases, and (4) treatment of depression in primary care can be effective.<sup>6-10</sup> These results have sensitized primary care physicians to the importance of detecting and treating depression. Much less attention has been paid to GAD either in the mass media or in scientific literature, however, even though epidemiologic studies show that GAD is a commonly occurring disorder that is as seriously impairing as MDE.<sup>4,11</sup> As noted elsewhere (Kessler and Wittchen,<sup>12</sup> this issue), the discrepancy in available data on GAD compared with MDE can be traced to a number of

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factors related to initial reservations regarding the existence of GAD as an independent disorder. This has considerably delayed progress in improving the recognition and treatment of patients with GAD.

Recognition and treatment of GAD are of special importance in primary care, since GAD is associated with significant use of primary care resources, mostly for vaguely defined physical complaints that are typically associated with this condition. Indeed, unlike patients with MDE, patients with GAD do not usually know that their symptoms are indicative of an emotional disorder that has a specific name and an established treatment.<sup>13</sup> Because of this low self-recognition, the proportion of people with GAD who seek help specifically for their disorder is believed to be much lower than for MDE, even though the severity and impairment associated with GAD have been found to be comparable to MDE, in community surveys at least.<sup>10,11,14</sup>

Little is known about the presentation of primary care patients with GAD and their recognition in primary care settings due to a dearth of clinical, epidemiologic studies of GAD in these settings. This is especially true for GAD diagnosed according to the most recent DSM-IV criteria.<sup>15</sup> Indeed, our literature review found only one relevant primary care survey conducted in the early 1990s. This large multicenter World Health Organization study, conducted in 15 countries, evaluated recognition and treatment of GAD using DSM-III criteria.<sup>1</sup> Results showed that GAD is the most frequent anxiety disorder in primary care in a number of different countries.<sup>16</sup> Although several more recent primary care studies of anxiety and depression have been carried out,<sup>17-20</sup> they have not focused on the recognition or treatment of GAD.

The rational derivation of strategies to improve recognition and knowledge regarding effective treatment of undetected and undertreated disorders depends heavily on the availability of data on the prevalence, severity, comorbidity, and psychosocial correlates of the focal disorders in the health care system, as well as on information about attitudes, current practices and barriers to detection, and treatment among health care providers.<sup>21</sup> In an effort to obtain such information for GAD in primary care, a large study was carried out called "Generalized Anxiety and Depression in Primary Care" (GAD-P).<sup>21-28</sup> This report presents additional original findings from this study, in particular regarding physician attitudes toward GAD and MDE, the comorbidity of GAD with MDE, and the prevalence and functional impairment of patients with GAD in primary care.

## AIMS

The GAD-P study was carried out in a nationally representative sample of 558 primary care physician practices in Germany. The study had 3 components. First, the 558 primary care physicians completed a prestudy question-

naire that obtained information on provider characteristics, qualifications, and attitudes. Second, all patients who consulted any of these physicians on a single study day, September 14, 2000, were asked to complete a questionnaire that screened for GAD and MDE. Third, the physicians were asked to fill out a clinical appraisal questionnaire for each patient that included the physician's assessment and diagnostic appraisal of the mental and physical problems of the patient, along with information about treatments provided. These data were used to address the following questions:

1. How familiar with GAD and MDE are primary care physicians? What are their attitudes toward patients with these disorders? How do they manage these patients?
2. What are the point prevalences of DSM-IV pure GAD, pure MDE, and comorbid GAD/MDE in primary care? What are the impairments and disabilities associated with these disorders among the patients seen in primary care?
3. What are the presenting symptoms of primary care patients with pure and comorbid GAD and MDE? What proportion of such patients present emotional problems as their primary complaints?
4. What proportion of patients with these diagnoses are recognized by primary care physicians as having clinically significant emotional problems? How frequently are they correctly recognized as having GAD and/or MDE?
5. What types of treatments are prescribed to patients with pure and comorbid GAD and MDE?

Throughout the article, direct comparisons are made across patients with pure GAD, pure MDE, and comorbid GAD/MDE. Pure GAD refers to having no comorbid MDE. Other comorbid patterns are not considered.

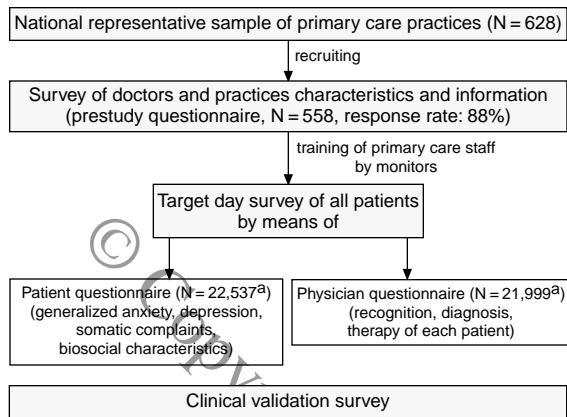
## METHOD

The methods and procedures of the GAD-P study have been described elsewhere in detail.<sup>23</sup> As a result, only a brief overview is presented here.

### Sample of Physicians

In order to be representative of the whole country, a relatively large sample of 628 primary care physicians (out of an approximate total of 56,000 primary care physicians in Germany) were invited to participate in a "general health review of their patients" (Figure 1). A total of 558 physicians participated (89% response rate). The sample was representative in terms of geographic distribution, primary care function, and years of clinical practice (mean  $\pm$  SD = 12.0  $\pm$  7.4 years). As is typical for the German primary care system, participating physicians reported a high workload that averaged 61 patients per day.

**Figure 1. Generalized Anxiety and Depression in Primary Care (GAD-P) Study Design**



<sup>a</sup>Due to inclusion and exclusion criteria as well as incomplete questionnaires, only  $N = 17,739$  of the patient questionnaires and  $N = 21,112$  of the physician questionnaires entered the analysis.

Participating doctors completed a prestudy questionnaire 2 months before the study. This questionnaire was completed while the physicians were still naive to the aims and procedures of the study in order to obtain unbiased information about their background and qualifications, the typical number and types of patients they see, and their attitude toward and knowledge of the treatment of mental disorders overall as well as GAD and MDE in particular.

### Sample of Patients

A survey of all primary care attendees was then conducted on a single day (September 14, 2000). All patients attending the primary care practice on this day were asked by a staff member to complete a symptom-screening questionnaire to obtain information about their biosocial characteristics, their reasons for visiting the doctor, impairments associated with their physical and mental health complaints, and information about help-seeking or treatment prior to the current visit. This questionnaire was completed before seeing the doctor.

Questionnaires were obtained from 22,537 patients and the physicians completed and returned a clinical reappraisal of a total of 21,999 patients. To reduce the burden on office staff during the assessment day, all exclusion and inclusion criteria for the study were applied post hoc after receiving the data sets from each physician. This is why a considerable number of data sets had to be excluded. A total of 2292 respondents were excluded, the primary exclusion criteria being: (1) those who were < 16 years of age ( $N = 227$ ), (2) those who filled out only the front part of the questionnaire (mostly due to acute suffering or severe acute pain or sensory disability, such as poor vision;  $N = 958$ ), and (3) respondents with an identifier (ID) on the patient questionnaire that did not match any of the doc-

tor questionnaires ( $N = 1107$ ). A total of 20,245 patients were retained for analysis after these exclusions.

An additional 2506 respondents were excluded from the final analysis because of missing data on at least 1 of the diagnostic questions for GAD or MDE. Full patient self-report data on diagnostic information for GAD and MDE were available for the remaining 17,739 patients. Among excluded patients ( $N = 2506$ ), 2 systematic patterns of nonresponse were observed. Firstly, the completion rate for the 2 diagnostic screening instruments decreased significantly with increasing age, which means that older patients were more likely than younger patients to be excluded because of providing incomplete information. Secondly, patients who reported in the front part of the questionnaire that they had a history of consulting the doctor because of mental disorders (such as depression, anxiety, and sleep disturbance) were less likely to be excluded because of missing data. Parallel analyses of weighted and unweighted data yielded similar substantive results; consequently, unweighted data are reported.

### Diagnostic Criteria

Symptoms and diagnosis of generalized anxiety (as defined by DSM-IV criteria)<sup>15</sup> were assessed using the Generalized Anxiety Screening Questionnaire (GAS-Q [H.-U. Wittchen and J. Hoyer, manuscript in preparation]), a modified version of the Anxiety Screening Questionnaire (ASQ).<sup>29</sup> Symptoms of MDE (as defined by DSM-IV criteria)<sup>15</sup> were assessed by the Depression Screening Questionnaire (DSQ).<sup>10,30</sup> These instruments served as the diagnostic “gold standard” for the presence of either GAD or MDE. Test-retest reliability with kappa values of 0.74 for GAD and 0.82 for MDE over a 2-day retest period and congruent validity comparing DSM-IV diagnoses with DSM-IV algorithms of the Composite International Diagnostic Interview (GAD:  $\kappa = 0.72$ ; MDE:  $\kappa = 0.76$ ) show that these screening instruments have excellent psychometric properties.<sup>23</sup>

### Physician-Rated Clinical Appraisal

Physicians completed a questionnaire for each patient at the end of the visit. The questionnaire used a standardized assessment form to rate the perceived diagnostic status and severity using the Clinical Global Impressions scale score<sup>39</sup> of each patient along with information on current and past treatments of the patient for the current disorder. As noted above, physician questionnaires were completed for 21,999 of the 22,537 patients who completed self-report questionnaires (97.6% response rate). The relatively small number of uncompleted questionnaires was attributed to time pressures.

### Statistical Analysis

All statistical analyses were carried out using the SVY-procedures in the Stata software package<sup>31</sup> to adjust for the

**Table 1. Point Prevalence of DSM-IV Generalized Anxiety Disorder (GAD) in Primary Care (N = 17,739 patients)**

Status	Total		Males (N = 7274)		Females (N = 10,465)	
	N	%	N	%	N	%
No generalized anxiety symptoms	12,953	73.0	5753	79.1	7200	68.8
Generalized anxiety symptoms only	3842	21.7	1223	16.8	2619	25.0
GAD (1–5 mo)	231	1.3	71	1.0	160	1.5
GAD (> 6 mo)	713	4.0	227	3.1	486	4.6
Total prevalence of GAD (> 1 mo)	944	5.3	298	4.1	646	6.2

fact that the 17,739 observations were clustered into 558 practices rather than sampled randomly from all patients seeing a primary care physician in Germany on the day of the study. The SVY-procedures apply the robust sandwich estimator of variance.<sup>32–34</sup>

## RESULTS

### Physician Characteristics and Attitudes About GAD and MDE

The majority of physicians (56.9%) reported in their prestudy questionnaires that they view GAD and MDE as “clearly different” from each other in terms of their nosologic status and clinical management. Only a small minority of physicians (1.8%) reported that they believe GAD and MDE are the same disorder. The remaining 41.3% reported that they have no clear view of the independence or similarity of GAD and MDE. A significantly ( $p = .05$  level 2-sided test) higher proportion of doctors reported that they typically treat MDE more often than GAD with antidepressants of the serotonin-norepinephrine reuptake inhibitor (SNRI) and noradrenergic and specific serotonergic antidepressant (NaSSA) type (28.8% MDE vs. 22.5% GAD, respectively), of the SSRI type (31.7% MDE vs. 18.7% GAD, respectively), and of the tricyclic type (14.6% MDE vs. 5.8% GAD, respectively), as well as with herbal medication (48.0% MDE vs. 30.6% GAD, respectively). In contrast, physicians see psychotherapy as about equally indicated for GAD and MDE (26.6% vs. 22.4%). The majority of physicians (56.9%) fully agreed with the statement that modern antidepressants such as SNRIs are effective in patients with GAD.

Physicians estimated that mental disorders are quite frequent in their everyday practice, with a mean estimate that 7.8% of all primary care patients have MDE, 7.4% have some type of anxiety disorder, and 3.8% have GAD. A significantly lower proportion of physicians judged their competence in recognizing and diagnosing generalized anxiety as “good” or “very good” (55.7%) in comparison to their competence in recognizing and diagnosing MDE (64.3%). Competence ratings with regard to the pharmacologic treatment of GAD (36.7% “good” or “very

good”) and MDE (46.1%) were considerably lower than perceived competence in recognition and diagnosis. Competence ratings in providing psychotherapy (GAD: 20.3%; MDE: 24.4%, NS) were lower still. Reports of taking postgraduate courses in anxiety in the past year are significantly related to perceived “good” or “very good” competence in recognition and diagnosis (odds ratio [OR] = 1.5; 95% confidence interval [CI] = 1.0 to 2.3) and pharmacologic treatment (OR = 1.6; 95% CI = 1.1 to 2.5) of GAD, while other variables, such as years of experience, daily number of patients, and type of specialist orientation, are not associated with these perceived competence ratings.

There is good agreement among participating physicians (87.7%) that patients with GAD are “high utilizers” of primary care who require more time than patients with MDE. Despite this perceived burden, only 15.5% of doctors reported that they had considered referring their patients with GAD to secondary care “whenever possible.”

There was very little systematic variation in perceptions. The main exceptions were as follows: older physicians less frequently consider GAD and MDE as different disorders (OR = 0.5; 95% CI = 0.4 to 0.7); physicians perceived as having high levels of competence with regard to recognition and diagnosis of anxiety disorders less frequently refer their patients to specialist institutions (OR = 0.5; 95% CI = 0.3 to 0.8); and physicians with high recognition and diagnostic rates of GAD have a lower rate of referrals (OR = 0.6; 95% CI = 0.3 to 0.9).

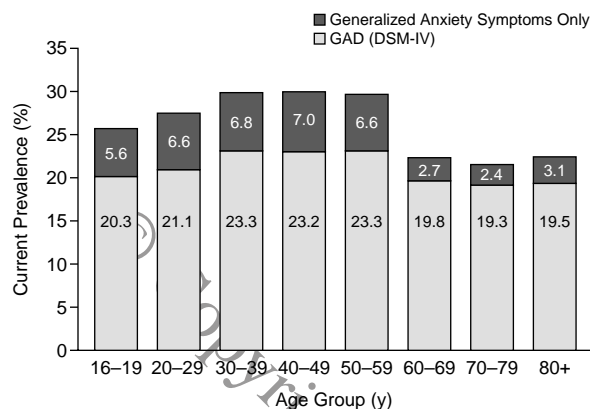
### Patient Biosocial Characteristics

The 17,739 patients included in the analyses ranged in age from 16 to 96 years (mean age = 50.3 years), with 58.9% female, 59.5% married, 45.7% employed, 31.1% retired, and 11.0% homemakers. Most of the patients reported that their primary reason for seeing the physician was a somatic complaint (38.3%) or pain (29.4%). Mental problems were reported as a reason for seeing the doctor by only 12.0% of patients, while anxiety was reported as a reason by 3.3% and depression by 4.0% of patients.

### Point Prevalence of Symptoms and Diagnoses of GAD

Twenty-two percent of all patients reported that they suffered from at least some of the core symptoms for GAD as defined in DSM-IV without having enough symptoms for a threshold diagnosis during the 4 weeks preceding the assessment. An additional 1.3% met all DSM-IV criteria for GAD<sup>15</sup> with the exception of the 6-month duration requirement (i.e., met criteria for subthreshold GAD). An additional 4.0% met all criteria for threshold GAD (DSM-IV). Point prevalence was higher for women compared with men on all levels of symptoms (Table 1). A closer analysis of the patients with subthreshold GAD (who met all criteria for GAD with the exception of the 6-month duration requirement) revealed that they did not differ in any variable examined (symptom count, duration,

**Figure 2. Current Prevalence (%) of All Patients Who Had Generalized Anxiety Symptoms and Generalized Anxiety Disorder (GAD) During the Weeks Preceding the Survey**



age at onset, disability, age, gender) from the patients with GAD in the threshold group. This is not surprising in light of the fact that GAD is typically described as a chronic but fluctuating disorder, making it extremely likely that patients with a past lifetime history of threshold GAD are not meeting the 6-month persistence criteria in a point prevalence study of this type. We therefore decided to combine these 2 groups of subthreshold and threshold patients, yielding a point (4-week) prevalence estimate for GAD of 5.3% (males: 4.1%; females: 6.2%).

An analysis of the age distribution (Figure 2) shows symptoms of GAD are highly prevalent in all age groups, but that full GAD might be less prevalent among patients in the  $\geq 60$  age range (2.4%–3.1%) than among those in the 16–59 age range (5.6%–7.0%). The reported mean age at first onset of GAD was 33.2 years for females and 34.8 years for males, with only 10.8% of patients reporting an onset before the age of 16. The mean duration of the current episode of GAD was 33.8 months, with great variation in the mean as a function of respondent age. Patients in the 16–29 age range reported the shortest average duration (18.0 months), while patients in the  $> 60$  age range reported the longest average duration (52.3 months).

### Pure and Comorbid GAD and MDE

A total of 9.8% of all patients (7.6% of males and 11.2% of females) met criteria for either current GAD or MDE (Table 2). Unlike the results in general population surveys, in which MDE is always more common than GAD,<sup>4,11</sup> the prevalence of GAD in primary care (5.4% in the total sample, 4.1% among males and 6.2% among females) is approximately equal to the prevalence of MDE among primary care patients (6.0% in the total sample, 4.8% among males, 6.8% among females). This finding is consistent with previous surveys, which have found people with GAD to be heavy users of primary care services.<sup>3,18,25</sup>

**Table 2. Point Prevalence of Pure and Comorbid DSM-IV Generalized Anxiety Disorder (GAD) in Primary Care (N = 17,739 patients)**

Status	Total		Males (N = 7274)		Females (N = 10,465)	
	N	%	N	%	N	%
Neither GAD nor major depressive episodes (MDE)	16,023	90.3	6725	92.5	9298	88.9
Pure GAD	666	3.8	205	2.8	461	4.4
Pure MDE	772	4.4	251	3.5	521	5.0
Comorbid GAD (with MDE)	278	1.6	93	1.3	185	1.8

It is noteworthy that less than one third of the patients with either GAD or MDE meet current criteria for both disorders. This represents a considerably lower rate of comorbidity than is reported in studies of specialty mental health treatment samples.<sup>35,36</sup> As noted by Kessler and Wittchen (this issue),<sup>12</sup> the very high comorbidity between GAD and MDE found in specialty treatment samples during the decade following the introduction of DSM-III criteria for diagnosis of GAD led many commentators to suggest that GAD is a prodrome or residual or severity marker of MDE rather than an independent disorder.<sup>37,38</sup> Subsequent research showed that this view was incorrect and that GAD is generally more independent of MDE in community samples than in specialty treatment samples.<sup>3,14</sup> The high comorbidity of GAD with MDE in specialty samples was shown to be an artifact of selective help-seeking based on comorbidity. The results of the present study suggest that this bias does not exist in primary care (Table 2), where help-seeking appears to be much more strongly related to GAD than to comorbid GAD/MDE (a result that can be inferred from the higher relative prevalence of GAD versus MDE compared with general population samples and the comparatively low comorbidity between the 2 disorders).

### Presenting Problems and Correlates of Pure and Comorbid GAD

Only 13.3% of patients with GAD present with anxiety as a primary complaint. This is significantly higher than the proportion of other primary care patients who present with a primary complaint of anxiety (OR = 8.0; 95% CI = 6.2 to 10.2). Nonetheless, it is striking that 87% of patients with GAD do not present with anxiety as their primary symptom, especially in light of the duration and severity of the anxiety reported by these patients. Patients with GAD also have other presenting symptoms that occur significantly more often than among other primary care patients. These include somatic illness and complaints (47.8%; OR = 1.5; 95% CI = 1.3 to 1.8), pain (34.7%; OR = 1.3; 95% CI = 1.1 to 1.6), depression (15.5%; OR = 8.6; 95% CI = 6.8 to 11.0), and sleep disturbance (32.5%; OR = 8.4; 95% CI = 6.4 to 11.0). In contrast, requests for laboratory test-

**Table 3. Impairment and Disability Measures in Pure and Comorbid Generalized Anxiety Disorder (GAD) and Major Depressive Episodes (MDE)<sup>a</sup>**

Disability/Impairment	No GAD/ No MDE	Pure GAD		Comorbid GAD/MDE		Pure MDE	
	%	%	OR (95% CI)	%	OR (95% CI)	%	OR (95% CI)
<b>Disabilities</b>							
Disabled because of somatic problems	23.8	47.3	2.9 (2.4 to 3.4)	57.1	4.3 (3.3 to 5.7)	51.4	3.4 (2.9 to 4.0)
Disabled because of psychiatric problems	16.9	66.7	9.9 (8.3 to 11.7)	81.1	20.9 (14.8 to 29.0)	68.4	10.6 (8.9 to 12.7)
<b>Suicidality/depressive episodes</b>							
Frequent suicidal thoughts	6.3	25.4	4.8 (4.0 to 5.7)	64.0	26.3 (20.5 to 333.8)	59.7	21.9 (18.6 to 25.8)
At least 2 depressive episodes	0.3	3.6	12.7 (7.5 to 21.4)	31.3	148.5 (100.2 to 220.0)	25.9	114.0 (79.6 to 163.3)

<sup>a</sup>Abbreviations: CI = confidence interval, OR = odds ratio.

**Table 4. Treatment Seeking in Pure and Comorbid Generalized Anxiety Disorder (GAD) and Major Depressive Episodes (MDE)<sup>a</sup>**

Treatment	No GAD/ No MDE	Pure GAD		Comorbid GAD/MDE		Pure MDE	
	%	%	OR (95% CI)	%	OR (95% CI)	%	OR (95% CI)
<b>Treatment seeking</b>							
4+ primary care visits in the past 12 mo	56.2	67.8	1.6 (1.4 to 2.0)	73.0	2.1 (1.6 to 2.8)	69.0	1.7 (1.4 to 2.1)
2+ visits for other specialized doctors	33.1	41.8	1.5 (1.2 to 1.7)	42.9	1.5 (1.2 to 2.0)	35.9	1.1 (1.0 to 1.3)
Psychiatrist	5.4	18.6	4.0 (3.2 to 5.0)	25.3	6.0 (4.4 to 8.1)	21.4	4.8 (3.8 to 6.1)
Psychotherapist	4.3	18.4	5.0 (3.9 to 6.3)	27.9	8.5 (6.4 to 11.4)	17.9	4.8 (3.8 to 6.1)
<b>Therapy anxiety/depression</b>							
Never	78.7	41.4	Ref	29.9	Ref	36.8	Ref
Past	17.6	38.9	4.2 (3.5 to 5.0)	39.5	5.9 (4.4 to 7.9)	42.4	5.1 (4.4 to 6.0)
Current	3.7	19.8	10.2 (8.1 to 12.9)	22.0	21.2 (15.8 to 30.5)	20.8	12.1 (9.8 to 15.1)

<sup>a</sup>Abbreviations: CI = confidence interval, OR = odds ratio, Ref = reference category for calculating OR.

ing, prescription renewal, and control/follow-up visits (26.8%; OR = 0.8; 95% CI = 0.6 to 0.9) are less frequent among patients with GAD than among other primary care patients.

Females are overrepresented among patients with pure (69.2%; OR = 1.6; 95% CI = 1.4 to 1.9) and comorbid GAD (66.6%; OR = 1.4; 95% CI = 1.1 to 1.8 [Table 2]). The risk for GAD is associated with unemployment (10.7%; OR = 1.6; 95% CI = 1.2 to 2.1 for pure GAD and 17.4%; OR = 3.2; 95% CI = 2.2 to 4.8 for comorbid GAD). In comparison, GAD is not associated with retirement, marital status, or, among women, with being a housewife. Pure MDE is less common than pure GAD among married patients (49.5% vs. 53.5%) and more common than pure GAD among housewives (15.1% vs. 9.6%) and widowed/divorced patients (25.6% vs. 21.4%).

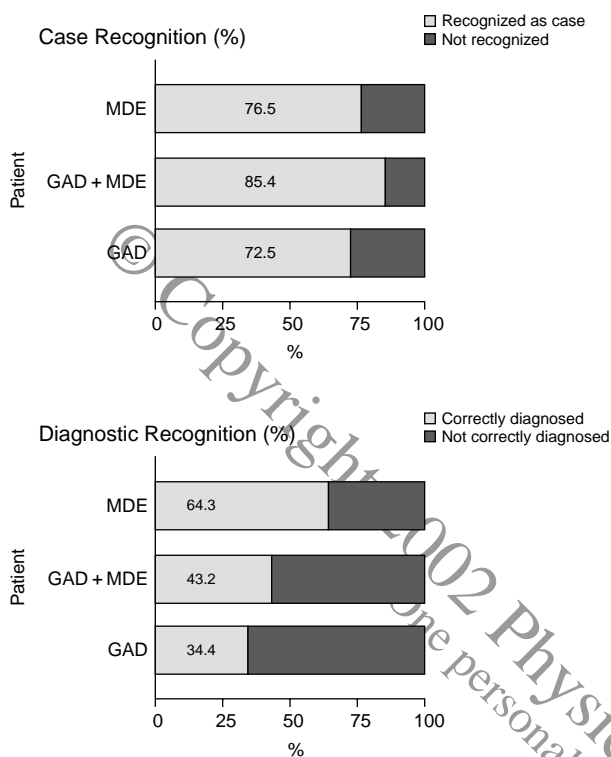
The vast majority of patients with pure GAD (66.7%) report impairment of occupational functioning (being unable to work for at least 1 day in the past month because of their symptoms [Table 3]). This proportion is similar to that found for pure MDE (68.4%), but significantly lower than for patients with comorbid GAD/MDE (81.1%). Interestingly, patients with GAD and MDE also report greater impairment due to somatic symptoms than other patients. This suggests important associations with somatic health for both disorders, a finding that could explain the low proportion of patients with GAD who presented with anxiety as a primary complaint. The mean number of impairment/disability days is substantial, with 9.9 days in the past

month among patients with pure GAD (mean ratio [MR] compared with non-GAD/depression cases: 1.4; 95% CI = 1.3 to 1.5), 15.3 for patients with pure MDE (MR: 2.2; 95% CI = 2.1 to 2.4), and 16.5 for patients with comorbid GAD/MDE (MR: 2.3; 95% CI = 2.1 to 2.5).

Another important measure of the burden of GAD is reflected in the comparatively high rates of suicidal thoughts among these patients. One quarter (25.4%) of patients with pure GAD, 59.7% of those with pure MDE, and 64.0% of those with comorbid GAD/MDE reported having had frequent suicidal thoughts or having either planned or attempted suicide during the 4 weeks prior to the assessment. These are much higher rates than those found among primary care patients who present with complaints other than GAD or MDE.<sup>1,25</sup> Even among cases of pure GAD, for which the rate of suicidality is lower than for MDE or GAD/MDE, the relative-odds compared with other primary care attenders is substantial (OR = 4.8; 95% CI = 4.0 to 5.7).

Patients with GAD, with or without comorbid MDE, are high utilizers of health care resources compared with patients unaffected by either disorder (Table 4). Patients with pure GAD are 1.6 times more likely to have seen a primary care physician 4 or more times in the past year than those without either GAD or MDE, while the relative-odds are 1.7 among patients with pure MDE and 2.1 among patients with comorbid GAD/MDE. It is striking, in light of this high utilization, that only 19.8% of patients with pure GAD, 22.0% of those with pure MDE, and

**Figure 3. How Often Do Physicians Recognize a Case and How Often Do They Diagnose Correctly?<sup>a</sup>**



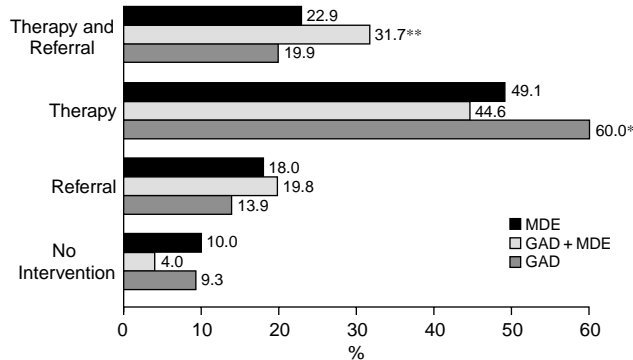
<sup>a</sup>Abbreviations: GAD = generalized anxiety disorder, MDE = major depressive episodes.

20.8% of those with comorbid GAD/MDE were currently receiving treatment for their mental disorder. The low proportion of treatment for both GAD and MDE is remarkable, especially if one considers the fact that 38.9% to 42.4% of the patients indicated having received some form of treatment in the past because of their disorder.

**Recognition of GAD**

Data on 2 types of physician recognition are presented in Figure 3. The first, which we refer to as “case recognition,” means that the physician reported the patient as currently having a clinically significant mental disorder based on the Clinical Global Impressions scale,<sup>39</sup> with severity rated as at least moderate. Approximately 3 of every 4 patients with either pure GAD (72.5%) or pure MDE (76.5%) were recognized according to this broad definition. Recognition was even higher among patients with comorbid GAD/MDE (85.4%). The second type of recognition, which we refer to as “diagnostic recognition,” means that the physician accurately diagnosed the patient as having GAD and/or MDE. Diagnostic recognition is considerably lower than case recognition, with rates of only 34.4% for pure GAD, 64.3% for pure MDE, and 43.2% for GAD, if patients present with both (comorbid GAD/MDE).

**Figure 4. Primary Care Interventions in Recognized Cases Based on Diagnostic Status of the Patient (basic indication)<sup>a</sup>**

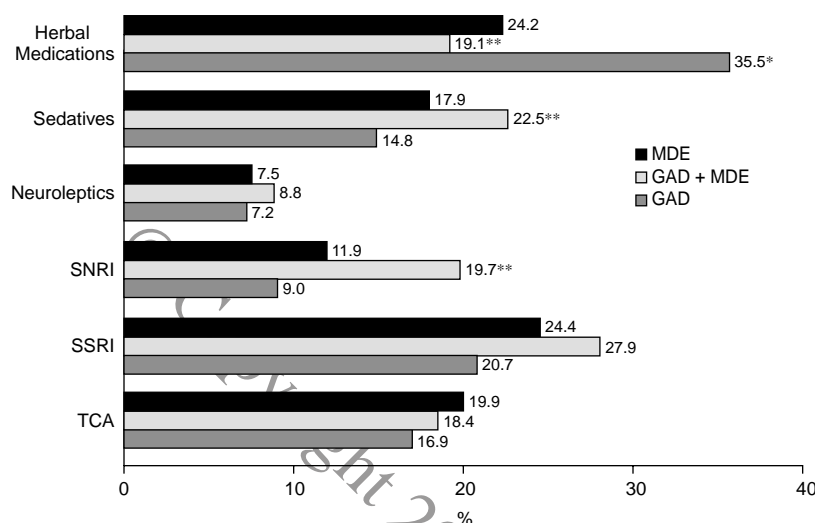


<sup>a</sup>Abbreviations: GAD = generalized anxiety disorder, MDE = major depressive episodes.  
\*p = .049.  
\*\*p = .007.

Multivariate logistic regression revealed that none of the physician characteristics assessed in the prestudy questionnaire (e.g., practice experience; number of patients per day; self-attributed competence for recognition, diagnosis, and pharmacologic treatment or psychotherapy for anxiety and depression; number of postgraduate courses taken; attitude toward statements about GAD and MDE; postgraduate qualification in psychotherapy) was significantly associated with case recognition. Some patient variables, however, were significant predictors of case recognition, including older age of the patient (50–96 years vs. 15–19 years; OR = 3.9; 95% CI = 1.9 to 8.2), recent onset of GAD (OR = 0.3; 95% CI = 0.2 to 0.3), comorbid MDE (OR = 2.2; 95% CI = 1.5 to 3.4), and depressive symptoms as a primary reason for the visit (OR = 3.8; 95% CI = 2.1 to 6.8). A similar profile emerged in predicting diagnostic recognition; none of the physician variables was found to predict diagnostic recognition, while several patient variables were again significant predictors. The latter included older age (50–96 years vs. 15–19 years: OR = 4.2; 95% CI = 2.0 to 3.1), recent onset of GAD (OR = 0.4; 95% CI = 0.2 to 0.6), a higher number of depression symptoms (4–10 symptoms vs. 0 symptoms: OR = 3.4; 95% CI = 2.0 to 5.9), and anxiety as a primary reason for consulting the physician (OR = 2.7; 95% CI = 1.4 to 5.1).

It is noteworthy that the high rate of false negative results (physicians failing to diagnose the majority of patients with GAD and a substantial minority of those with MDE) was accompanied by a high rate of false positive results (physicians assigned diagnoses of GAD and MDE to a substantial number of patients who did not fulfill criteria for these disorders in the patient questionnaire). Indeed, the false positive result is greater, in absolute magnitude, than the false negative result, with physicians assigning a diagnosis of GAD to 11.7% of all patients and a diagnosis

**Figure 5. Summary: Primary Care Interventions in Recognized Cases Based on Diagnostic Status of the Patient (medications)<sup>a</sup>**



<sup>a</sup>Abbreviations: GAD = generalized anxiety disorder, MDE = major depressive episodes, SNRI = serotonin-norepinephrine reuptake inhibitor, SSRI = selective serotonin reuptake inhibitor, TCA = tricyclic antidepressant.  
\*p < .001.  
\*\*p < .05.

**Table 5. Summary: Primary Care Treatment of Patients With Pure Generalized Anxiety Disorder (GAD), Pure Major Depressive Episodes (MDE), and Comorbid GAD/MDE**

	Diagnosis Based on Patient Questionnaires					
	GAD (N = 665)		MDE (N = 775)		GAD/MDE (N = 273)	
	N	%	N	%	N	%
Hierarchical Structure <sup>a</sup>						
Antidepressants	128	21.0	191	26.8	86	34.5
Psychotherapy	75	12.3	76	10.7	22	8.8
Referral	76	12.5	121	17.0	54	21.7
Herbal medications	43	7.1	32	4.5	12	4.8
Other medications only	6	1.0	15	2.1	6	2.4
Counseling only	12	2.0	9	1.3	4	1.6
No intervention	270	44.3	269	37.7	65	26.1
Total <sup>b</sup>	610	100.0	713	100.0	249	100.0

<sup>a</sup>Only 1 statement possible, hierarchical structure (see text).

<sup>b</sup>Total number does not equal number of patients because of non-availability of physicians' Clinical Global Impressions scale.

of MDE to 21.2% of all patients. Only one sixth of patients diagnosed by physicians as having GAD or MDE were classified as having one of these diagnoses in the patient questionnaire. Even allowing for the possibility of some false negatives in the patient questionnaire, this is an extraordinarily high false positive rate.

**Management of GAD and MDE Among Recognized Cases**

Primary care physicians predominantly administer treatment for GAD and MDE themselves rather than referring cases to specialists (Figure 4). Among recognized cases, 60.0% of patients with GAD, 49.1% of those with MDE,

and 44.6% of those with comorbid GAD/MDE received some kind of treatment. Patients with comorbid GAD/MDE were referred to a mental health specialist, or received treatment, more often (31.7%) than patients with either pure GAD (19.9%) or pure MDE (22.9%). Treatment consisted of prescribing at least 1 medication in more than 90% of cases (Figure 5). In addition, irrespective of whether patients have pure or comorbid disorder, some type of psychological advice or therapy is provided by the primary care physician, and patients usually receive more than 1 medication. More than half of the patients with pure GAD and two thirds of the patients with comorbid GAD and MDE receive more than 2 medications. Patients with comorbid GAD and MDE receive comedication more often than patients with pure GAD, and those with pure MDE receive more than 1 medication less frequently than all other groups. Antidepressants and herbal medications are prescribed most frequently. Patients with pure GAD are treated with herbal medication

significantly more often (35.5%) than the other groups. Patients with GAD receive sedatives (SNRIs, SSRIs, and tricyclic antidepressants [TCAs]) less often than patients with MDE. Patients with comorbid GAD and MDE are treated simultaneously with sedatives and SSRIs more often than patients with a pure disorder and are treated with a herbal medication less often than patients with a pure disorder.

The profile of GAD and MDE management is summarized in Table 5. In contrast to the previous sections, patients who were neither recognized nor treated by their physician were also included in the analyses. Using a hierarchy of adequate treatments, antidepressants are considered the first-line treatment, followed by psychotherapy and referral. Herbal or other medications are considered to be the lowest in hierarchical terms compared with the above mentioned treatment/management strategies. Patients with MDE are most likely to receive an adequate treatment: 26.8% receive antidepressants, 10.7% receive a psychotherapeutic treatment, and 17.0% are referred to a specialist. An additional 4.5% of patients with MDE receive herbal medications exclusively, 2.1% receive only other medications such as neuroleptics or monoamine oxidase inhibitors (MAOIs), and 1.3% receive only counseling. The remaining 37.7% of patients with MDE are not treated, either because of lack of recognition or because they do not receive treatment despite the disorder being recognized. A similar, but slightly more positive, picture emerges for patients with comorbid GAD/MDE. Antidepressant treatment is received by 34.5% of such patients,



with an additional 8.8% receiving psychotherapy and 21.7% receiving referrals to specialists. A total of 26.1% of patients with GAD/MDE are not treated. The situation is considerably worse for patients with pure GAD, with only 21.0% of patients receiving antidepressant medication, an additional 12.3% receiving psychotherapy, and 12.5% being referred to a specialist. Herbal and other medications are received by 7.1% and 1.0% of patients, respectively, and 2.0% of patients receive only counseling. The remaining 44.3% of cases are not treated.

A series of logistic regression analyses was carried out to find significant predictors of receiving adequate primary care detection and treatment of GAD and MDE. Only a handful of predictors were found. Patients with anxiety as the initial reason for consulting a physician were significantly more likely than other patients to receive adequate treatment for GAD, but the odds ratio was only of marginal substantive importance (OR = 1.5; 95% CI = 1.0 to 2.4;  $p < .05$ ). Surprisingly, neither severity nor comorbidity proved to be significant predictors of adequate treatment of either GAD or MDE. In terms of physician characteristics, the only statistically significant predictor of treatment adequacy was young age of the physician (OR = 2.0; 95% CI = 1.0 to 4.0;  $p < .05$ ). Neither number of postgraduate courses nor attitude toward anxiety or depression was a significant predictor of adequate treatment.

## DISCUSSION

Before discussing the GAD-P study findings, 2 important limitations should be noted. Firstly, diagnoses of GAD and MDE were based on a self-report questionnaire rather than on interviews. This limitation, however, must be weighed against the fact that the use of the questionnaire enabled the inclusion of more than 20,000 primary care patients in the study, which would not have been logistically possible with a diagnostic interview. Further, as noted in the Method section, the instruments used to assess GAD and MDE, the GAS-Q and the ASQ, have been shown to have good reliability and validity compared with diagnoses based on fully structured diagnostic interviews. Nonetheless, it would have been valuable to carry out clinical diagnostic interviews to generate gold standard diagnoses of GAD and MDE. This is especially true in light of the considerably higher proportions of patients classified by primary care physicians as having GAD and MDE than the proportions found in the patient questionnaires. A second limitation was that participating primary care physicians were aware of the study focus on anxiety and depression at the time of assessing patients and completing the questionnaire, rating each patient for anxiety and depression. This awareness might have played a part in the high proportion of patients assigned false positive diagnoses of GAD and MDE. Consistent with this possibility, the proportions of study patients who were classified as

having GAD or MDE by these physicians were substantially higher than the proportions estimated by these same physicians in their prestudy questionnaire before they were aware of the focus of the study (3.1 times as high for GAD and 2.7 times as high for MDE). Because of the limitations, the results regarding patterns and correlates of detecting GAD and MDE should be interpreted with caution.

Despite these limitations and based on the good psychometric properties of the GAS-Q (H.-U. Wittchen, J. Hoyer, manuscript in preparation) and the ASQ,<sup>29</sup> we believe that the estimate of primary care patients who meet criteria for current GAD (5.3%) or MDE (6%) is accurate. The notable additional finding that pure GAD (without comorbid MDE) is much more frequent (3.8%) than comorbid GAD (1.6%) highlights the core importance of GAD as the most frequent anxiety disorder and second most frequent of all mental disorders in primary care. The finding that the strict point prevalence of GAD (defined by DSM-IV criteria)<sup>15</sup> is roughly equal to the prevalence of MDE is consistent with the suggestion from community epidemiologic literature, but contrasts with previous smaller primary care studies with different diagnostic criteria that have failed to identify pure GAD.<sup>13,19</sup> This is also consistent with our finding that the association of more frequent use of primary care services by patients with GAD is more strongly related than for patients with MDE.<sup>13</sup> Importantly, unlike the situation in specialty mental health treatment samples, where the vast majority of patients with GAD also meet criteria for MDE,<sup>36,38</sup> only a minority of the primary care patients with GAD in the GAD-P sample also meet criteria for comorbid MDE. This pattern is similar to the one we find in community samples,<sup>14</sup> suggesting that the overrepresentation of GAD in primary care compared with the community is due to selection based on GAD itself as a high utilizer group. This presumably reflects the fact that people with GAD worry more than others about their health, just as they worry more about a great many other things. Another factor that might contribute to this finding is that unlike most other studies that used a greater time window for diagnosing both disorders (lifetime, 12 months, 6 months, or 1 month), we based our diagnostic decision primarily on symptoms occurring in the previous 4 weeks.

A second key finding of the study was that recognition and treatment rates for GAD are extremely poor and considerably worse than for MDE, despite the fact that the majority of primary care physicians believe GAD is a severe disorder and sufficiently different from MDE. As mentioned earlier, participating physicians were aware of the focus of the study at the time they rated patients for GAD and MDE. Based on this observation, we suspect that less than one third of primary care patients with GAD are correctly diagnosed. As any bias in physician ratings related to awareness of the study focus would be expected to affect diagnostic recognition of anxiety and depression

similarly, the much lower rate of recognizing pure GAD than pure MDE is probably an accurate reflection of the situation in day-to-day clinical practice. This is a matter of considerable importance in light of the fact that GAD is highly prevalent in primary care, that effective treatments are available, and that GAD is a seriously impairing disorder. The GAD-P findings offer 2 broad explanations: the first refers to the fact that, unlike depression, the core presenting complaints of primary care patients with GAD rarely provide sufficiently clear cues for correct diagnostic decisions. Clearly, physicians recognize the individual's long-term suffering, and they also have few doubts that the patient is suffering from a severe mental disorder that requires treatment. However, the patient's vague and predominantly somatic presentations seem to confuse the primary care physician and thus seem to be a key obstacle to improved care. Does this mean that the solution is to offer more information and training to primary care physicians?

From the latter perspective, the finding that participation in ongoing medical education courses and other physician characteristics are not significant predictors of diagnostic recognition is at first sight discouraging. It suggests that academic detailing and other aggressive physician education strategies are unlikely by themselves to correct the problem of low recognition.

A strategy worthy of future consideration in addressing the problem of low recognition of GAD in primary care is to focus on direct-to-consumer education in addition to physician education. It is important to recognize in this regard that people with GAD are usually vigilant and active information-seekers, who might well be very receptive to public education messages emphasizing the fact that persistent tension, worry, and anxiety can be symptoms of an illness. If so, their chances of obtaining treatment could be greatly enhanced by their approaching physicians with a primary complaint of GAD. A finding in the literature that is indirectly consistent with this line of thinking is that the majority of community respondents with GAD who did not seek treatment for their disorder report that this is mainly because they do not think their worry is pathologic.<sup>12</sup>

The problem of inadequate treatment among patients who are recognized as having GAD is a complex matter that was examined only indirectly in the GAD-P study due to the fact that patients were not followed over time to judge the adequacy of their treatment. However, we know from recent studies of treatment adequacy in other samples that a substantial proportion of patients in treatment for anxiety disorders receive treatments that do not meet the minimum standards based on existing patient practice guidelines.<sup>40-42</sup> One would expect that adherence to these practice guidelines will increase over time as the guidelines become more widely disseminated and discussed in the professional literature, and as effectiveness trials become available to document the superiority of guideline-concordant treatment over usual practices in leading to

remission from GAD. Our findings of treatments assigned by physicians participating in the study support in general the observation that the vast majority of patients with GAD appear not to be treated or managed according to established guidelines. Despite a significant rate of referral to mental health specialists, where psychotherapeutic methods and newer antidepressants are more likely to be used, current study suggests that treatment patterns in primary care could frequently be regarded as symptom-specific interventions (e.g., by treating hypervigilance symptoms and sleep disturbance with sedatives or hypnotics, respectively) rather than syndrome- or GAD-specific interventions.

These findings support the claim that the vast majority of patients with GAD remain poorly recognized and treated in primary care and call for continued efforts to improve these 2 critical areas.

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