Knowledge About Recommended Treatment and Management of Major Depressive Disorder, Panic Disorder, and Generalized Anxiety Disorder Among Family Physicians

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Background: Concerns have been raised about whether primary care physicians appropriately manage mental disorders. We assessed family physicians' knowledge of appropriate management of major depressive disorder (MDD), panic disorder, and generalized anxiety disorder (GAD).

Method: Active members of the Texas Academy of Family Physicians (N = 3553) were mailed a questionnaire in 2002 asking them to indicate which treatments they felt were effective for MDD, panic disorder, and GAD and also to indicate how they had treated their last patient with each disorder. Their treatment strategies were then compared with current guidelines.

Results: 574 physicians (16%) responded. The percentage of respondents scoring at or above 80% for knowledge of effective treatments was 88.3% for MDD, 16.8% for panic disorder, and 12.5% for GAD ($p < .001$ for MDD vs. panic disorder or GAD). Only 0.3% of MDD patients, 1.4% of panic disorder patients, and 4.0% of GAD patients were not prescribed at least 1 of the effective treatments. Referral rates to mental health providers were high for all 3 conditions.

Conclusions: There were significant gaps in physician knowledge of current guidelines on treating panic disorder and GAD, but not MDD. However, most patients with one of the disorders were either referred to a mental health provider or treated with an effective modality.

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Most mental health care is delivered in primary care practice. In evaluating the quality of that care, concerns have been raised about the management of depressive and anxiety disorders by primary care physicians. Studies in the mid-1990s documented that only 55% to 61% of primary care patients with major depression receive adequate antidepressant dosages.[1–5] Similarly, a 2002 study found that only 47% of primary care patients with panic disorder received adequate doses of medication.[6]

When the prescribing behavior of primary care physicians is compared with that of psychiatrists, several differences are evident. Overall, general practitioners treating depression prescribe selective serotonin reuptake inhibitors (SSRIs) (but in lower doses) and anxiolytics more frequently than do psychiatrists, but prescribe neuroleptics less frequently.[7] In 1993, general practitioners also rated fluoxetine as less effective for obsessive-compulsive disorder than did psychiatrists.[8] Ultimately, primary care patients with major depressive disorder (MDD), panic disorder, or generalized anxiety disorder (GAD) are more likely to receive guideline-concordant care if they have at least 1 visit to a mental health setting.[9]

The reason for these interspecialty differences is unclear. Although there are no differences between specialties in terms of medication safety concerns,[8] familiarity with the labeled indications of psychotropics does make a difference.[7,10] In addition, dissimilarities in the seriousness of the mental illness and comorbidity may contribute to differences.[9] Previous work has documented that patients seen in psychiatric settings have more severe illness than those seen in primary care settings[11,12]; this is particularly true for MDD[13,14] and panic disorder.[15] Finally, the observation that training influences psychotropic prescribing behavior[7] raises the question of whether a lack of knowledge about psychotropic use in MDD, panic disorder, and GAD may contribute to inappropriate management.

To assess possible gaps in family physicians' knowledge and management of psychiatric disorders, we surveyed their knowledge of current treatment recommendations for 3 psychiatric disorders: MDD, panic disorder, and GAD. In addition, we also documented the physicians' self-reported management of these disorders.

METHOD

Procedure

All of the active members of the Texas Academy of Family Physicians (TAFP) (N = 3553) were mailed a survey requesting that they participate in the study. The

Table 1. Scoring Key for Physician Knowledge (part 1 of the Mental Health Knowledge and Management Instrument)[a]

Treatment	Major Depressive Disorder	Panic Disorder	Generalized Anxiety Disorder
Antidepressants			
Tricyclic antidepressants	2[b–d]	1[c,e]	2[c,f]
Trazodone	1[d]	0[e]	0
Selective serotonin reuptake inhibitors	2[b–d]	2[c,e]	2[f]
Bupropion	2[b,d]	0[e]	0
Venlafaxine	2[b,d]	1[e]	2[f]
Anxiolytics			
Low-potency benzodiazepines	0[c]	0[c,e]	1[c,f]
High-potency benzodiazepines	0[c]	1[c,e]	1[c,f]
Buspirone	0[c]	0[c,e]	1[c,f]
Neuroleptics	0[b]	–1[e]	0[f]
β-Blockers	0	0[e]	0
Cognitive-behavioral therapy	1[b]	1[e]	1[f]

[a]Scoring: 2 = first-line agent, 1 = effective, 0 = not effective, –1 = contraindicated. Scoring was derived from recommendations in the following practice guidelines and consensus statements: [b]American Psychiatric Association[17]; [c]Institute for Clinical Systems Improvement[18]; [d]Snow et al.[20]; [e]American Psychiatric Association[16]; [f]Ballenger et al.[19]

survey asked about their knowledge of the treatment of MDD, panic disorder, and GAD and how they managed the last patient seen with each disorder. In addition, subjects were asked to provide demographic and practice setting information. All responses were anonymous. The study protocol was reviewed by the Institutional Review Board of the University of Texas Health Science Center at San Antonio and determined to be exempt from full board review.

Instrument

The Mental Health Knowledge and Management Instrument was developed for this study and consisted of 2 parts. In part 1, subjects were asked to indicate which treatments from the list provided were effective in the management of MDD, panic disorder, and GAD. In part 2, subjects were asked to indicate how they treated the most recent patient with each disorder.

On the basis of recent practice guidelines and consensus statements,[16–20] each treatment in part 1 was assigned a score (Table 1). A value of 2 was assigned if the treatment was recommended as a first-line agent and 1 if the treatment was not first line but was effective in treating the disorder. Ineffective treatments were assigned a value of 0; the contraindicated neuroleptic treatment of panic disorder was assigned a value of –1. One point was also awarded if an ineffective or contraindicated treatment was not selected. Knowledge scores could range from 0 to 15 for MDD, –1 to 12 for panic disorder, and 0 to 14 for GAD. The total knowledge level was computed as the sum across treatments divided by the total score possible, multiplied by 100 for each disorder.

Table 2. Sample Demographics[a]

Characteristic	TAFP Members (N = 3553)	Respondents (N = 574)
Gender		
Female	898 (25)	160 (28)
Male	2655 (75)	413 (72)
Race		
White	1988 (56)	474 (83)
Black	76 (2)	11 (2)
Asian	244 (7)	41 (7)
Other	100 (3)	43 (8)
Ethnicity		
Hispanic	355 (10)	67 (12)
Non-Hispanic	1447 (41)	389 (68)
Age, y		
< 45	1687 (48)	253 (44)
45–64	1526 (43)	280 (49)
≥ 65	232 (7)	34 (6)
Site		
Rural	585 (16)	184 (32)
Urban	2943 (83)	380 (66)
Years in practice, mean	14.8	15.6[b]
Practice setting[c]		
Private practice	…	472 (82)
University department	…	40 (7)
Residency program	…	45 (8)

[a]Values shown as N (%) unless otherwise noted. Sums less than 100% due to missing data.
[b]SD = 11.1.
[c]Data not available for TAFP members.
Abbreviation: TAFP = Texas Academy of Family Physicians.

Analysis

We analyzed the relationship of knowledge level with physician demographics and practice setting using t tests, analysis of variance, and Pearson correlations with $p < .05$ considered significant. Analysis of physician management of the most recent patients was limited to those patients who were not referred to a mental health provider. We evaluated whether prescription of first-line agents (part 2 of the instrument) was related to physician demographics or knowledge level.

RESULTS

Of the 3553 active TAFP members, only 574 (16%) completed and returned the survey. The demographic and practice setting information of respondents is presented in Table 2 along with comparisons to the total TAFP membership. Although comparisons in race and ethnicity suggest significant differences, the amount of missing data for these variables makes comparisons questionable. Generally, respondents were similar to the TAFP membership in gender, age, and years in practice. Rural physicians were overrepresented in the sample.

Table 3 presents the results of assessment of knowledge level, and Figure 1 shows histograms of the distributions of knowledge levels for the 3 disorders. Overall, 507 respondents (88.3%) had an MDD knowledge score of ≥ 80 (mean ± SD = 89.8 ± 12.4). For the anxiety disorders, 96 respondents (16.8%) had a panic disorder score

Table 3. Proportion of Physicians Responding Who Indicated That Treatment Is Effective, N (%)

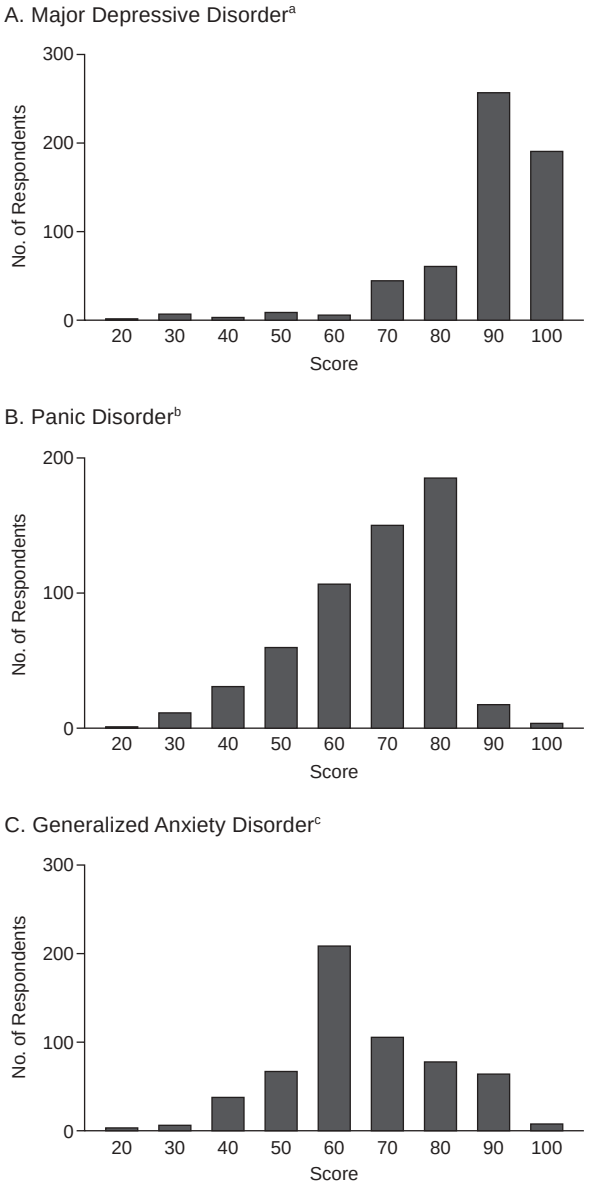
Treatment	Major Depressive Disorder	Panic Disorder	Generalized Anxiety Disorder
Antidepressants			
Tricyclic antidepressants	507 (88.3)	110 (19.2)	114 (19.9)
Trazodone	426 (74.2)	60 (10.5)	104 (18.1)
Selective serotonin reuptake inhibitors	546 (95.1)	503 (87.6)	488 (85.0)
Bupropion	518 (90.2)	102 (17.8)	156 (27.2)
Venlafaxine	544 (94.8)	226 (39.4)	316 (55.1)
Anxiolytics			
Low-potency benzodiazepines	16 (2.8)	336 (58.5)	397 (69.2)
High-potency benzodiazepines	33 (5.8)	398 (69.3)	392 (68.3)
Buspirone	68 (11.8)	195 (34.0)	484 (84.3)
Neuroleptics	55 (9.6)	62 (10.8)	85 (14.8)
β-Blockers	5 (0.9)	249 (43.4)	210 (36.6)
Cognitive-behavioral therapy	384 (66.9)	429 (74.7)	439 (76.5)

of ≥ 80 (66.0 ± 13.4) and 72 respondents (12.5%) had a GAD score of ≥ 80 (65.8 ± 14.2). Knowledge level was significantly higher for MDD than either panic disorder (paired $t = 33.07$, $p < .001$) or GAD (paired $t = 34.73$, $p < .001$).

The reported management of the most recent patients is presented in Table 4. Among those who did not refer their most recent patients to a mental health provider, first-line agents were prescribed by 282 (97.6%), 303 (73.2%), and 325 (75.6%) of the respondents for MDD, panic disorder, and GAD, respectively. However, few patients were not prescribed at least 1 of the effective treatments; only 1 MDD patient (0.3%), 6 panic disorder patients (1.4%), and 17 GAD patients (4.0%) did not receive an effective treatment. Excluding patients who were referred to mental health providers, patients with MDD received a mean ± SD of 1.89 ± 1.33 treatments, patients with panic disorder received 1.81 ± 1.30 treatments, and patients with GAD received 2.20 ± 1.59 treatments; only 7, 26, and 10 patients with MDD, panic disorder, and GAD, respectively, received no treatment or referral. Referral to a mental health provider was common. This referral was associated with prescription of cognitive-behavioral therapy for MDD (OR = 2.12, 95% CI = 1.45 to 3.10), panic disorder (OR = 2.62, 95% CI = 1.75 to 3.94), and GAD (OR = 2.73, 95% CI = 1.83 to 4.09). Unfortunately, in this study, we cannot distinguish whether responses indicating cognitive-behavioral therapy (CBT) truly represented CBT or some other form of behavioral therapy or psychotherapy. Fewer than half (45.7%) of the physicians referred none of the 3 patients, while 111 (19.3%) referred all 3 patients.

Knowledge level was inversely related to physician age ($r = –0.234$, $p < .001$ for MDD and $r = –0.203$, $p < .001$ for GAD) and years in practice ($r = –0.164$, $p < .001$ for MDD and $r = –0.172$, $p < .001$ for GAD).

Figure 1. Knowledge Scores for Major Depression, Panic Disorder, and Generalized Anxiety Disorder



[a]N = 574, mean = 89.8, SD = 12.44.
[b]N = 573, mean = 66.0, SD = 13.37. Data missing for 1 respondent.
[c]N = 574, mean = 65.8, SD = 14.22.

Knowledge level was unrelated to other demographic and practice setting variables. As expected, knowledge level was associated with prescription of first-line agents (Table 5). However, knowledge level was not associated with referral.

DISCUSSION

This study found that family physicians had higher knowledge levels about the management of MDD than ei-

Table 4. Reported Treatment of Most Recent Patient With Each Type of Disorder, N (%)[a]

Treatment	Major Depressive Disorder (N = 289)		Panic Disorder (N = 414)		Generalized Anxiety Disorder (N = 430)	
	Monotherapy (N = 146)	Combination Therapy (N = 136)	Monotherapy (N = 186)	Combination Therapy (N = 202)	Monotherapy (N = 179)	Combination Therapy (N = 241)
Antidepressants						
Tricyclic antidepressants	2 (1.4)	26 (19.1)	3 (1.6)	10 (5.0)	2 (1.1)	15 (6.2)
Trazodone	0 (0)	32 (23.5)	1 (0.5)	4 (2.0)	2 (1.1)	18 (7.5)
Selective serotonin reuptake inhibitors	95 (65.1)	119 (87.5)	127 (68.3)	176 (87.1)	104 (58.1)	182 (75.5)
Bupropion	11 (7.5)	68 (50.0)	2 (1.1)	19 (9.4)	1 (0.6)	36 (14.9)
Venlafaxine	37 (25.3)	78 (57.4)	8 (4.3)	55 (27.2)	12 (6.7)	82 (34.0)
Anxiolytics						
Low-potency benzodiazepines	0 (0)	3 (2.2)	16 (8.6)	67 (33.2)	11 (6.1)	79 (32.8)
High-potency benzodiazepines	0 (0)	3 (2.2)	12 (6.5)	81 (40.1)	8 (4.5)	84 (34.9)
Buspirone	1 (0.7)	7 (5.1)	6 (3.2)	32 (15.8)	35 (19.6)	135 (56.0)
Neuroleptics	0 (0)	5 (3.7)	0 (0)	7 (3.5)	0 (0)	11 (4.6)
β-Blockers	0 (0)	3 (2.2)	7 (3.8)	42 (20.8)	3 (1.7)	34 (14.1)
Cognitive-behavioral therapy	0 (0)	57 (41.9)	4 (2.2)	72 (35.6)	1 (0.6)	91 (37.8)

[a]Data shown are for respondents who did not refer their last patient to a mental health provider. Of the total sample, 282 (49.4%), 159 (27.7%), and 143 (25.0%) of respondents referred their last major depressive disorder, panic, and generalized anxiety disorder patients, respectively, to a mental health provider. Data on treatment were missing for 3 respondents for MDD, 1 respondent for panic disorder, and 1 respondent for generalized anxiety disorder.

Table 5. Knowledge Scores on the Mental Health Knowledge and Management Instrument[a]

Management	Major Depressive Disorder	Panic Disorder	Generalized Anxiety Disorder
Treatment with first-line agent			
No	83.3[b]	61.0[c]	59.3[d]
Yes	90.8	68.0	67.3
Referral to mental health provider			
No	90.5	66.1	65.3
Yes	89.0	65.8	67.4

[a]Values shown are mean scores (possible range, 0–100).
[b]$t = 1.82$, $p = .069$.
[c]$t = 4.99$, $p < .001$.
[d]$t = 4.59$, $p < .001$.

ther panic disorder or GAD. The reported use of first-line agents paralleled knowledge level. However, most patients with any of these diagnoses were either referred to a mental health provider or treated with an effective modality.

Knowledge level for MDD was good, but significant gaps in knowledge were found for both panic disorder and GAD. In panic disorder, while the ineffective buspirone, β-blockers, and low-potency benzodiazepines were rated "effective" by more than 30% of respondents, fewer than 20% rated tricyclic antidepressants as "effective." Similarly, while the ineffective treatments bupropion and β-blockers were rated "effective" for GAD by over 20% of respondents, fewer than 20% rated tricyclics as "effective." With a few exceptions,[21] previous studies have generally not focused on management of specific disorders. Gaps in knowledge may reflect the inaccurate or limited information provided to primary care physicians. For example, the *American Family Physician* published 3 reviews on the management of panic disorder and GAD between 1995 and 2000.[22–24] These reviews suggested that in panic disorder, mixed treatment responses had been reported for the following treatments: (1) β-blockers, based on open and controlled studies as well as reviews[22,23]; (2) trazodone, based on a promising single-blind study and a less-than-promising controlled study[22]; and (3) low-potency benzodiazepines, based on controlled studies as well as quantitative and qualitative reviews.[23] Response to buspirone was characterized as uncertain, based on 2 conflicting open studies and 2 promising controlled studies.[22] Similarly, Gliatto[24] suggested that, in the management of GAD, response to SSRIs based on a small controlled study and to tricyclics based on a controlled trial and a review was mixed or uncertain. Thus, some of the gaps in knowledge about the management of panic disorder and GAD may be explained by the conveyance of poor information not always based on strong evidence to primary care physicians. However, correct knowledge of diagnosis and treatment recommendations in MDD does not necessarily result in improved quality of care.[25]

Despite the gaps in knowledge, most nonreferred patients were prescribed effective treatments, even patients with panic disorder or GAD. The rates of reported use of effective treatments in this study were higher than previously reported.[26] However, studies of trends in psychotropic prescription have generally found that the performance of primary care physicians is improving. For example, from 1987 to 1997, proportions of patients with depression receiving antidepressants rose significantly while proportions of those receiving antipsychotics or benzodiazepines did not.[27] Primary care physicians decreased their use of anxiolytics from 1980 to 1989.[28] Between 1985 and 1994, both psychiatrists and primary care physicians increased their use of antidepressants for depression.[29] These trend studies therefore also suggest that the differences in prescription patterns between psy-

chiatrists and primary care physicians are narrowing. In fact, a recent study found no difference between psychiatrists' and primary care physicians' treatment of panic disorder.[30]

Several limitations to this study should be noted. First, although the assessment of knowledge level was based on recent guidelines, not everyone may agree with the scoring of responses; for example, many atypical neuroleptics have been shown to have efficacy in treatment-resistant depression. In addition, our assessment of knowledge was restricted to the efficacy of the agents and not dosing, which is often cited as a principal source of inadequate treatment; thus, knowledge level in this study may have been higher than if dosing knowledge had also been assessed. Second, recently published family practice reviews on the management of depression[31] and panic disorder[32] could have affected the measurements of knowledge level during data collection. Third, the assessment of current management of these disorders was based on self-report of the most recently treated patients and may not reflect actual behavior; by asking about effective treatments and then management of recent patients, responses may have been biased. Fourth, the response rate was poor. Although the demographics of the respondents were similar to the overall TAFP membership, there is still cause for concern about the external validity of the findings. However, if we assume that physicians who are more attuned to mental illness would be more likely to respond, the estimates of knowledge level and management presented here would be biased in the positive direction; thus, the less-than-optimal level of knowledge about anxiety disorders may actually be worse than what we describe. Finally, the survey was limited to 1 state. Even if the results are valid, they may not be generalizable to primary care physicians in other regions.

In conclusion, a high proportion of family physicians displayed up-to-date knowledge about management of MDD. Although the physicians' knowledge about the management of panic disorder and GAD was less than that about management of MDD, most patients with these disorders received effective therapy. Referral rates to mental health providers were high for all 3 conditions, perhaps indicating that primary care physicians still feel uncomfortable treating mental illness.

Drug names: bupropion (Wellbutrin and others), buspirone (BuSpar and others), fluoxetine (Prozac and others), trazodone (Desyrel and others), venlafaxine (Effexor).

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