

Prevalence of Anxiety, Depression, and Substance Use Disorders in an Urban General Medicine Practice

Mark Olsson, MD, MPH; Steven Shea, MD; Adriana Feder, MD; Milton Fuentes, PsyD; Yoko Nomura, PhD; Marc Gameroff, MA; Myrna M. Weissman, PhD

Background: Most research on the prevalence of mental disorders in primary care has been conducted in practices that serve middle- and upper-income patients.

Objective: To determine the prevalence of major mental disorders in a primary care practice that serves a predominantly low-income immigrant patient population.

Design: Cross-sectional survey; criterion standard.

Setting: Urban general medicine practice.

Participants: Systematic sample of consecutive adult patients with scheduled appointments. Of 1266 approached eligible patients, 1007 (80%) participated.

Main Outcome Measures: PRIME-MD Patient Health Questionnaire major depression, generalized anxiety disorder, panic disorder, alcohol use disorder, and suicidal ideation; drug use disorder; functional status; work loss; family distress; and mental health treatment.

Results: Major depression (18.9%), generalized anxiety (14.8%), panic (8.3%), and substance use (7.9%) disorders and suicidal ideation (7.1%) were highly prevalent. Many patients had more than 1 disorder (range, 36.3% [substance use disorder] to 76.9% [panic disorder]). In multivariate analyses, each disorder was significantly associated with an increase in impairment after controlling for demographic characteristics, perceived health, and the other disorders. A minority of patients with each disorder (range, 22.5% [substance use disorder] to 46.4% [panic disorder]) reported receiving mental health treatment in the last month.

Conclusions: Clinically significant depression, anxiety, substance use, and suicidal ideation are quite common in this practice and associated with significant functional impairment. Primary care practices that serve poor urban immigrant populations have a critical need to provide access to mental health services.

Arch Fam Med. 2000;9:876-883

From the Departments of Psychiatry and Medicine, College of Physicians and Surgeons of Columbia University, and New York State Psychiatric Institute, New York.

RECENT ADVANCES in clinical psychopharmacology and the development of effective models for providing mental health services in general medical settings have increased the relevance of determining the amount, type, variety, and distribution of mental disorders in primary care.^{1,2} Varying estimates have been reported of current major depressive disorder (MDD) (2.2%-14.0%),²⁻¹⁶ generalized anxiety disorder (GAD) (1.6%-7.0%),^{5-9,11,12,14,15,17,18} panic disorder (PD) (0.7%-6.2%),^{4-9,12,14,15,17} drug- (1.2%-2.4%)^{7,12} and alcohol-related disorders (2.6%-8.2%),^{4,6-9,12,14,15,17,19,20} and suicidal ideation (2.4%-3.3%).^{21,22} While strict com-

parisons across these studies are complicated by differences in diagnostic criteria and assessment procedures, the findings strongly suggest that mental disorders and suicidal ideation are substantially more common in primary care patients than in the general adult population.^{23,24}

Previous research in this area has focused almost exclusively on middle-class, privately insured populations. However, from a public health perspective, it is especially important to determine the mental health treatment needs of low-income urban primary care populations. Community surveys consistently indicate that economically disadvantaged people have higher rates of mental disorders than their more affluent counter-

PARTICIPANTS AND METHODS

This study was conducted at the faculty and resident group practice of the Division of General Medicine at the New York Presbyterian Hospital (Columbia Presbyterian Medical Center), New York. All data forms were translated from English to Spanish and backtranslated by a bilingual team of mental health professionals. The institutional review board of the Columbia Presbyterian Medical Center approved the study protocol and all participants gave written informed consent.

PROTOCOL AND PATIENT RECRUITMENT

A systematic sample of consecutive adult primary care patients with scheduled appointments who presented to the clinic waiting room were invited to participate in the study. Eligible patients were between 18 and 70 years of age, had made at least 1 previous visit to the practice, could speak and understand Spanish or English, and were scheduled for face-to-face contact with their primary care physician. Patients were excluded from the study if their current general health status prohibited completion of the survey forms. Patients who were determined to be actively suicidal or homicidal were excluded from the study and appropriate emergency care was provided.

A total of 3429 patients were prescreened, of whom 1266 met study eligibility criteria. The most common reasons for patient exclusion were age older than 70 or younger than 18 years (43.5%), not scheduled for face-to-face contact with a primary care physician (31.1%), no previous visit to the practice (18.5%), health status prohibited completion of the forms (9.0%), and approached following rather than preceding the primary care visit (11.2%). Less commonly, patients were excluded because they could not speak and understand English or Spanish (1.3%), refused approach by the research assistant (0.4%), had active suicidal plans (0.2%), or were excluded for other reasons (0.2%).

Of the 1266 who met eligibility criteria, 1007 (80%) consented to participate. Study participants were slightly younger (mean [SD] age, 53.2 [12.2] years) than eligible nonparticipants (55.5 [11.3] years) ($P=.02$), but participants and nonparticipants did not differ significantly with respect to sex or racial/ethnic distribution.

SOCIODEMOGRAPHIC AND CLINICAL ASSESSMENT

At study intake, patients ($N=1007$) completed a patient history form to assess age, sex, race/ethnicity, marital status, family income, educational achievement, and a 5-point self-perceived overall health measure (excellent,

Continued on next page

parts.^{25,26} Poor people are also less likely to seek mental health treatment²⁷ and, if they do, are comparatively less likely to receive treatment from mental health specialists.^{28,29} In addition, the poor rely disproportionately on primary care providers for mental health treatment.³⁰ Data from the National Medical Expenditure Survey reveal that general medical physicians provide mental health care to 40% of poor and 47% of near-poor mental health outpatients, but only 27% of low-income, 33% of middle-income, and 29% of high-income mental health outpatients.³⁰ However, little has been published describing the prevalences of the common mental disorders in low-income primary care populations. An understanding of the prevalence and distribution of mental disorders in such settings has implications for the costs of care, time efforts required by providers, need for mental health specialists, and potentially for health outcomes associated with chronic medical illnesses.

The limited available evidence suggests that mental disorders are quite common among low-income primary care patients. For example, one recent study³¹ of a poor ethnically diverse group of women attending a gynecologic clinic at San Francisco General Hospital found exceedingly high rates of mental disorder. More than one fifth (21.5%) of patients met criteria for current MDD,

6.8% met criteria for PD, 5.9% for GAD, and 11.7% for alcohol abuse or dependence. These are among the highest rates ever reported from a general medical setting. High rates of major depression (12.3%) and GAD (6.8%) have also been found in a public family health center in Texas that serves low-income Mexican Americans.¹¹ In another study,⁵ probable alcohol abuse or dependence was assessed in 16% of primary care patients from a New Mexican clinic operated by the Indian Health Service. Although these studies suggest that mental disorders are especially prevalent in low-income primary care populations, they all have methodologic limitations, including reliance on convenience sampling, small sample sizes (<250 patients), and none assessed related functional impairment.

We examine the prevalence of major psychiatric disorders in a general medical practice that serves an economically disadvantaged urban community. Contemporary diagnostic criteria were applied to a large representative adult patient sample. The specific aims of the study were to (1) estimate the prevalence of clinically significant anxiety, depression, and substance use, (2) determine demographic groups at greatest risk for these conditions, (3) assess associated functional impairment, and (4) evaluate the extent of mental health treatment.

very good, good, fair, poor). The history form also included the current MDD, current PD, current GAD, and past-year probable alcohol abuse/dependence sections of the *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV)* PRIME-MD Patient Health Questionnaire (PHQ).³² A probable drug abuse/dependence section, patterned on the PRIME-MD PHQ alcohol section, was also administered. Suicidal ideation was assessed with the PHQ item to determine whether the respondent had “thoughts that you would be better off dead or of hurting yourself in some way” for at least several days in the last 2 weeks.

Disability was measured with the 10-point self-rated family life/home responsibilities and social life subscales from the Sheehan Disability Scale (SDS) (0=none, 1-3=mild, 4-6=moderate, 7-9=marked, and 10=extreme).³³ Because only 21.1% of the sample were gainfully employed, the SDS work subscale was not used in the following analyses. Items from the Social Adjustment Scale³⁴ were used to evaluate how patients were getting along with family members (very well, well, poorly, very poorly). “Poorly” or “very poorly” were considered indicative of family distress. Work loss (yes or no) was assessed by asking whether during the past month patients had lost 1 or more days of work or school or had been unable to do housework or other regular activities. Patients were also asked whether they have “been treated for an emotional or mental problem” in the last month.

ANALYTIC STRATEGY

The prevalences of the 4 disorders (MDD, PD, GAD, and substance use disorder [SUD]) and suicidal ideation were determined for the entire sample and stratified by age, sex, race/ethnicity, marital status, and self-perceived physical health. Because of the common co-occurrence of disorders, comparisons on the impairment measures were examined across 3 groups: patients with none of the disorders, each disorder alone, and each disorder in combination with 1 or more other disorders. The χ^2 test was used to evaluate group comparisons for categorical measures and analysis of variance followed by the Tukey honestly significant difference test for pairwise comparisons was used for group comparisons of SDS scores. Alpha was set at .05 for prevalence estimates and .01 for post hoc comparisons. All tests were 2-sided.

Multivariate analyses were used to examine associations of each DSM-IV disorder with the 3 disability measures while controlling for demographic and clinical factors. The 4 disorders and patients' age, sex, race/ethnicity, and perceived physical health status were entered as independent variables into a multiple linear regression to examine the strength of associations with SDS scores. Logistic regression was used to examine associations of the disorders with the disability and family distress measures controlling for demographic variables, perceived physical health, and other diagnostic covariates. Results are expressed as adjusted odds ratios (ORs) with 95% confidence intervals (CIs).

RESULTS

BACKGROUND CHARACTERISTICS

The sample was poor and had little formal education. A majority reported that their total annual family income in 1998 was less than \$12 000 (86.9%). Many (44.1%) reported family incomes of less than \$6000 per year. Most of the patients had not completed high school (60.8%) and a substantial number (42.3%) had completed 8 or fewer years of education.

Approximately three quarters (73.0%) of the sample identified themselves as of Hispanic ancestry. Spanish was the primary language for two thirds of the sample (66.7%). A majority of the patients (71.5%) were born outside the mainland United States, most commonly in the Dominican Republic (51.5%), Puerto Rico (9.7%), Cuba (3.1%), or Ecuador (1.2%). Most patients were women (75.0%) and many were divorced or separated (42.4%).

A majority of patients reported that their current physical health was excellent (22.0%), very good (42.7%), or good (26.4%). A smaller number reported that it was fair (5.5%) or poor (3.4%). The most common primary reasons for patient visits recorded by the physicians were hypertension (24.8%), diabetes mellitus (18.8%), hyper-

cholesterolemia (5.5%), osteoarthritis (3.4%), and peptic ulcer disease (3.2%).

MAJOR DEPRESSIVE DISORDER

Current MDD, the most common disorder, was assessed in 188 (18.9%) patients. It was especially prevalent in women (21.1%) and Hispanics (22.3%). Separated and divorced persons were also significantly more likely to meet MDD criteria than married persons. Patients with poor perceived physical health were especially likely to meet MDD criteria (43.7%) (**Table 1**).

Patients with MDD had significantly higher 2-scale SDS scores and were more likely to report family distress and work loss than patients without MDD. Nearly two thirds (63.8%) of patients with MDD also met criteria for PD, GAD, or SUD. Patients with MDD and at least 1 comorbid disorder had significantly higher SDS scores than their counterparts with MDD alone (**Table 2**). After controlling for age, sex, race/ethnicity, marital status, perceived health status, and the other disorders, MDD was associated with a 2.3-fold (95% CI, 1.6-3.3) increased risk of work loss, a 3.4-fold (95% CI, 2.1-5.7) increased risk of family distress, and an expected increase of 5.8 points on the 2-scale SDS (95% CI, 5.0-6.7) (**Table 3**).

Table 1. Rates of *DSM-IV Mental Disorders and Suicidal Ideation in an Urban General Medicine Practice by Age, Sex, Race/Ethnicity, Marital Status, and Physical Health Status**

	No. of Patients	% (95% Confidence Interval)				
		Major Depressive Disorder	Panic Disorder	Generalized Anxiety Disorder	Substance Use Disorder	Suicidal Ideation
Total	1007	18.9 (16.5-21.3)	8.3 (6.6-10.1)	14.8 (12.6-17.0)	7.9 (6.3-9.6)	7.1 (5.4-8.6)
Age, y						
18-30	60	13.3 (4.5-22.2)	8.3 (1.1-15.5)	3.3 (0.0-8.0)	8.3 (1.1-15.5)	8.3 (1.1-15.5)
31-45	198	21.7 (15.9-27.5)	11.1 (6.7-15.5)	16.2 (11.0-21.3)	9.6 (5.5-13.7)	8.0 (4.3-11.9)
46-60	400	22.8 (18.6-26.9)	10.8 (7.7-13.8)	19.5 (15.6-23.4)	9.8 (6.8-12.7)	8.3 (5.6-11.0)
61-70	349	13.8 (10.1-17.4)	4.0 (1.9-6.1)	10.6 (7.4-13.4)	4.9 (2.6-7.1)	4.9 (2.6-7.1)
Sex						
Female	755	21.1 (18.1-24.0)	9.2 (7.2-11.4)	16.6 (13.9-19.2)	5.4 (3.8-7.1)	8.1 (6.1-10.0)
Male	252	12.3 (8.2-16.4)	5.6 (2.7-8.4)	9.5 (5.9-13.2)	15.5 (11.0-20.0)	4.0 (1.5-6.4)
Race/ethnicity						
Hispanic	736	22.3 (19.3-25.3)	9.5 (7.4-11.7)	16.2 (13.5-18.9)	7.5 (5.6-9.4)	8.0 (6.1-10.0)
Black, non-Hispanic	219	9.6 (5.7-13.5)	5.0 (2.1-7.9)	10.5 (6.4-14.6)	9.1 (5.3-13.0)	3.7 (1.1-6.2)
White, non-Hispanic	34	11.8 (0.4-23.2)	5.9 (0.0-14.2)	11.8 (0.4-23.2)	11.8 (0.4-23.2)	5.9 (0.0-14.2)
Other, non-Hispanic	18	5.3 (0.0-16.3)	5.3 (0.0-16.3)	15.8 (0.0-33.9)	5.3 (0.0-16.3)	10.5 (0.0-25.7)
Marital status						
Married	256	14.1 (9.8-18.4)	3.9 (1.5-6.3)	13.7 (9.4-17.9)	10.6 (6.8-14.3)	5.5 (2.7-8.3)
Separated/divorced	427	23.4 (19.4-27.5)	10.3 (7.4-13.2)	18.0 (14.4-21.7)	7.0 (4.6-9.5)	8.9 (6.2-11.6)
Widowed	121	17.4 (10.5-24.2)	8.3 (3.3-13.2)	9.9 (4.5-15.3)	4.1 (5.4-7.7)	5.8 (1.6-10.0)
Never married	203	16.3 (11.1-21.4)	9.9 (5.7-14.0)	12.3 (7.8-16.9)	8.8 (4.9-12.8)	5.9 (2.6-9.2)
Physical health status						
Poor	222	43.7 (37.1-50.3)	18.5 (13.3-23.6)	32.9 (26.7-39.1)	13.1 (8.6-17.5)	14.0 (9.4-18.6)
Fair	430	17.7 (14.1-21.3)	7.2 (4.8-9.7)	13.5 (10.3-16.7)	6.7 (4.4-9.1)	7.4 (5.0-9.9)
Good	266	5.6 (2.9-8.4)	4.1 (1.7-6.5)	6.8 (3.7-9.8)	7.1 (4.0-10.3)	3.0 (0.9-5.1)
Very good	55	0.0 (0.0-0.0)	1.8 (0.0-5.5)	0.0 (0.0-0.0)	5.5 (0.0-11.7)	0.0 (0.0-0.0)
Excellent	34	5.8 (0.0-14.2)	0.0 (0.0-0.0)	0.0 (0.0-0.0)	0.0 (0.0-0.0)	0.0 (0.0-0.0)

**DSM-IV* indicates Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition.

PANIC DISORDER

Eighty-four (8.3%) patients met criteria for PD during the past month. Panic disorder was especially common in patients with poor perceived physical health (18.5%). It was also more common in women (9.2%) than men (5.6%), although this difference was not statistically significant (Table 1).

Patients with PD had higher mean SDS scores and were more likely to report work loss than patients without PD. Approximately three quarters (77.4%) of patients with PD also met criteria for MDD, GAD, or SUD. After controlling for the confounding effects of these disorders, demographic characteristics and perceived health status, PD remained positively related to work loss, family distress, and SDS score (Table 3).

GENERALIZED ANXIETY DISORDER

Current GAD was also common (14.8%), especially among women (16.6%), separated and divorced individuals (18.0%), and persons with poor perceived physical health (32.9%). However, it was relatively uncommon in younger adults aged 18 to 30 years (3.3%) (Table 1).

Patients with GAD had significantly higher mean SDS scores and more commonly reported family distress than patients without GAD. Most patients (76.9%) with GAD also met criteria for MDD, PD, or SUD (Table 2). These patients had significantly higher SDS scores and more often experienced work loss than patients with GAD alone. In the multivariate analysis, GAD was associated with a significant elevation in SDS scores and a significantly increased risk of family distress and work loss (Table 3).

SUBSTANCE USE DISORDERS

There were 80 patients (7.9%) who met *DSM-IV* criteria for a SUD during the last year. This included 6.7% with an alcohol use disorder and 2.6% with a drug use disorder. Substance use disorder was significantly more common in men than women (Table 1).

Comparatively few patients with SUD (36.3%, n=29) met criteria for MDD, PD, or GAD. Moreover, patients with SUD alone tended to resemble the group without any of the mental disorders with respect to mean SDS score and rate of family distress and work loss (Table 2). By contrast, patients with SUD and 1 or more of the other mental disorders were significantly more impaired than those with SUD alone. The multivariate analyses re-

Table 2. Impairment of Patients in an Urban General Medicine Practice With DSM-IV* Mental Disorders and Suicidal Ideation

	N	Sheehan Disability Score†			Family Distress		Work Loss	
		Mean ± SD	Median	Analysis‡	%	Analysis	%	Analysis
Control group								
1. No mental disorder	695-697	1.7 ± 3.8	0.0	...	6.2	...	32.5	...
Diagnostic groups								
2. MDD only	68	5.4 ± 6.0	3.5	F _{2,880} = 207.4§	16.2	χ ₂ ² = 57.9§	55.9	χ ₂ ² = 61.4§
3. MDD with other disorders	119-122	10.8 ± 7.2	10.0	1 < 2 < 3	27.9	1 < 2, 3	67.5	1 < 2, 3
2. PD only	19	7.8 ± 6.8	7.0	F _{2,777} = 131.5§	5.3	χ ₂ ² = 33.2§	73.7	χ ₂ ² = 51.8§
3. PD with other disorders	65	10.4 ± 7.9	10.0	1 < 2, 3	26.2	1, 2 < 3	72.3	1 < 2, 3
2. GAD only	34	4.9 ± 6.3	2.0	F _{2,840} = 165.8§	17.6	χ ₂ ² = 49.1§	44.1	χ ₂ ² = 53.1§
3. GAD with other disorders	113-115	10.1 ± 7.5	10.0	1 < 2 < 3	26.1	1 < 2, 3	68.1	1, 2 < 3
2. SUD only	51	2.0 ± 3.8	0.0	F _{2,771} = 83.6§	9.8	χ ₂ ² = 40.4§	29.4	χ ₂ ² = 2.65
3. SUD with other disorders	27-29	11.7 ± 7.5	15.0	1, 2 < 3	37.9	1, 2 < 3	46.4	
Suicidal ideation								
1. Absence	932-935	2.8 ± 5.1	0.0	F _{1,1000} = 131.0§	9.0	χ ₁ ² = 13.5§	37.8	χ ₁ ² = 17.1§
2. Presence	69-71	10.3 ± 6.8	10.0		22.5		62.9	

*DSM-IV indicates Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition; MDD, major depressive disorder; PD, panic disorder; GAD, generalized anxiety disorder; and SUD, substance use disorder.
 †Higher scores on the 2-item Sheehan Disability Scale denote more impairment. The Sheehan Disability Scale has a theoretical range of 0 to 20.
 ‡Analysis columns present omnibus statistics and multiple comparisons when df > 1.
 §P < .001.

Table 3. Associations of DSM-IV Mental Disorders and Suicidal Ideation With Impairment Measures in Patients in an Urban General Medicine Practice*

Disorder	β (95% CI) Expected Increase in Sheehan Disability Scale Score* (n = 1003)	Odds Ratio (95% CI)	
		Work Loss (n = 1007)	Family Distress (n = 892)
Major depressive disorder	5.8 (5.0-6.7)	2.3 (1.7-3.4)	3.4 (2.1-5.7)
Panic disorder	5.8 (4.6-6.9)	3.2 (1.9-5.4)	2.1 (1.1-3.9)
Generalized anxiety disorder	5.5 (4.6-6.8)	2.2 (1.5-3.2)	3.0 (1.8-5.0)
Substance use disorder	1.5 (0.3-2.8)	0.6 (0.4-1.0)	2.0 (1.1-3.8)
Suicidal ideation	3.8 (2.6-5.0)	1.4 (0.8-2.5)	1.4 (0.7-2.7)

*Data are from multiple linear regressions (Sheehan Disability Scale score) and logistic regressions (work loss and family distress). Results are controlled for patient age, sex, race, marital status, perceived physical health status, and each of the listed disorders. DSM-IV indicates Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition; CI, confidence interval.

vealed that family distress, but not work loss or SDS score, was significantly related to SUD after controlling for several potential confounders.

SUICIDAL IDEATION

Recent suicidal ideation was reported by 7.1% of the sample. As compared with patients without suicidal ideation, the group with suicidal ideation had significantly higher SDS scores and a greater percentage reported family distress and work loss (Table 2).

Most (76.1%) of the patients with suicidal ideation also met criteria for at least 1 of the other disorders: MDD (63.4%), GAD (47.9%), PD (28.2%), or SUD (12.7%). Nonetheless, the association between suicidal ideation

and SDS scores remained significant after controlling for these mental disorders as well as demographic characteristics and perceived health (Table 3).

MENTAL HEALTH TREATMENT

Fewer than one half of the patients with MDD (39.5%), PD (46.4%), GAD (38.9%), SUD (22.5%), and recent suicidal ideation (40.9%) reported receiving professional mental health treatment in the past month. Among patients with a mental disorder, mental health treatment was significantly more likely to have been reported by women than men, middle-age adults (46-60 years) than younger adults (18-30 years), and those with rather than without recent work loss (Table 4).

Results of this study suggest that mental disorders are highly prevalent in primary care clinics that serve low-income, urban, immigrant patients. The rates of MDD (18.9%), GAD (14.8%), and PD (8.3%) are at the upper end of the ranges previously reported from 12 clinics using the PRIME-MD.^{9,32}

Major depressive disorder was especially common in patients of Hispanic ancestry (22.3%). There were also non-significant trends toward an increased rate of suicidal ideation and PD, but not SUD, in the Hispanic subsample. Little is known about ethnic group differences in the rates of mental disorders. The 2 large community surveys, both of which excluded Spanish-speaking respondents, provide conflicting results. The National Comorbidity Survey reported significantly higher rates of current MDD among Hispanics than blacks or whites,³⁵ but no significant ethnic differences in rates of GAD³⁶ and PD.³⁷ In the Epidemiologic Catchment Area Study, the rate of MDD was roughly similar among Hispanics, blacks, and whites.²³ A community survey in Puerto Rico also found that MDD was not more common than on the mainland.³⁸ Without further research, it is not possible to determine the extent to which the observed ethnic group differences reflect the differential effects of acculturative stress, response differences based on subtle English- or Spanish-language use patterns, or cultural differences in the expression of symptoms.

Mental disorders in this patient population were no less impairing than they are in more affluent primary care populations. For example, the proportion of patients with mental disorders who reported recent work loss was larger than the comparable proportion in a privately insured primary care sample that used the same measure of work loss: MDD (62.3% vs 50.7%), GAD (62.6% vs 53.3%), PD (72.6% vs 53.3%) and SUD (35.4% vs 33.3%).⁷ In our sample, each of the disorders was significantly and independently associated with family distress and all except SUD were associated with a composite measure of family and social impairment.

Current suicidal ideation (7.1%) was 2 to 3 times more common than has been previously reported from primary care clinics that serve less socioeconomically disadvantaged patients (2.4%-3.3%).^{21,22} Although suicidal ideation commonly occurred in connection with one of the mental disorders, it was also independently associated with increased functional impairment. Despite efforts to teach health care providers how to detect and treat patients at risk of suicide,^{39,40} patients with recent thoughts of harming themselves often receive no mental health treatment. Increasing physician awareness, knowledge, and confidence in assessing suicidality and strengthening linkages with mental health specialists may help to address this problem.

Table 4. Rate of Recent Mental Health Treatment by Age, Sex, Race/Ethnicity, Primary Language, Marital Status, Work Loss, and Perceived Physical Health Status in Patients With DSM-IV Disorders* in an Urban Primary Medicine Practice

Characteristic (Row N)	Rate per 100 Patients (95% Confidence Interval)
Total (N = 310)	34.2 (28.9-39.5)
Age, y	
18-30 (n = 14)	14.3 (0.0-32.6)
31-45 (n = 66)	34.8 (23.3-46.3)
46-60 (n = 152)	40.8 (33.0-48.6)
61-70 (n = 78)	24.4 (14.9-33.9)
Sex	
Female (n = 239)	38.5 (32.3-44.7)
Male (n = 71)	19.7 (10.4-29.0)
Race/ethnicity	
Hispanic (n = 247)	35.6 (29.6-41.6)
Black, non-Hispanic (n = 50)	24.0 (12.2-35.8)
White, non-Hispanic (n = 13)	46.2 (19.1-73.3)
Primary language	
English (n = 87)	32.2 (22.4-42.0)
Spanish (n = 223)	35.0 (28.7-41.3)
Marital status	
Married (n = 73)	34.2 (23.3-45.1)
Separated/divorced (n = 152)	36.2 (28.6-43.8)
Widowed (n = 29)	31.0 (14.2-47.8)
Never married (n = 56)	30.4 (18.4-42.4)
Work loss†	
Absent (n = 137)	23.4 (16.3-30.5)
Present (n = 171)	42.7 (35.3-50.1)
Physical health status	
Poor (n = 134)	38.8 (30.5-47.1)
Fair (n = 124)	31.5 (23.3-39.7)
Good (n = 46)	28.3 (15.3-41.3)
Very good (n = 4)	0.0 (0.0-0.0)
Excellent (n = 2)	100 (100-100)

*Analysis was limited to patients who met criteria for Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV) major depressive disorder, panic disorder, generalized anxiety disorder, or a substance use disorder.

†Two observations were missing.

One of the striking findings to emerge from this study was the extent to which suicidal ideation and the mental disorders other than substance use disorders were concentrated among patients with less favorable self-perceived physical health. Among the nearly two thirds of the patients who reported that their physical health was excellent or very good, only about 1% had MDD or PD and none had GAD or suicidal ideation. A practical implication of this finding is that concentrating screening efforts for clinically significant anxiety, depression, and suicidal ideation on patients who report less than very good perceived physical health status may conserve clinical resources while yielding an acceptably low risk of excluding affected patients. The availability of the PRIME-MD PHQ, a reliable self-administered procedure, increases the feasibility of selective screening for mental disorders in primary care.³²

Most of the patients with MDD, PD, and GAD, and a substantial proportion of those with SUD met criteria for more than 1 mental disorder. Consistent with previous research,^{7,17} impairment tended to be greatest among patients with multiple mental disorders. Patients with multiple mental disorders tend to be especially challenging to treat. When depression and anxiety occur together, for example, they are associated with more severe symptoms, a more chronic course, poorer outcome, and a higher incidence of suicide.⁴¹

The present findings are constrained by several limitations. First, we relied on a self-report instrument to determine diagnoses that may be less accurate than a structured diagnostic interview conducted by a health professional. However, recent research suggests that the PRIME-MD patient- and clinician-administered structured interviews have comparable diagnostic validity.³² Second, the study was limited to 4 common mental disorders and suicidal ideation rather than the full range of DSM-IV disorders. A more extensive diagnostic assessment would yield a more comprehensive portrait of psychopathology and higher rates of comorbidity. Third, several of the patients who met study eligibility criteria refused to participate in the study. Although we cannot precisely determine the extent to which nonresponse biased our results, it is reassuring that the study participants and nonparticipants had a similar basic demographic composition. Fourth, the study was limited to adults aged 18 to 70 years and so the findings may not be safely generalized to the large number of older primary care patients with mental disorders. Fifth, the sampling strategy was based on scheduled attenders. Frequent attenders were more likely to be sampled than less frequent, presumably healthier attenders, and those making unscheduled visits were excluded. Sixth, information was not collected on the type of provider (eg, psychiatrist, psychologist, social worker, primary care physician, member of clergy) who provided the mental health services.

The data presented herein demonstrate the magnitude of the mental health burden in a population of adults served by a general medical practice at an urban academic health center. These disorders strain the provision of health services and may help to explain why caring for this population is more costly than caring for adults with greater financial and social resources. Because of long traditions of relatively open access to care, a commitment to community service, and a social contract to treat uninsured or underinsured patients, urban academic health centers may tend to attract patients with a high level of illness burden.

It is unreasonable to think that the wide range of complex psychosocial problems faced by poor adults with multiple mental disorders can be solved by the primary care sector alone. Collaborations must clearly be devel-

oped with mental health specialists and social welfare agencies. At the same time, primary care physicians do have opportunities to identify patients with clinically significant depression, anxiety, and substance use and initiate appropriate interventions. Clinic directors can take positive steps to provide front-line treatment and establish referral pathways for highly specialized care according to patient needs and preferences. These might include implementing brief screening tools for high-risk patients, disseminating patient education information, keeping primary care providers informed of important advances in treatment, and maintaining strong ties to mental health specialists in the community. Evidence that mental disorders are highly prevalent in this general medical practice, frequently impairing, and concentrated among patients with less favorable physical health perceptions suggests the need for a balanced and integrated approach to general medical and mental health treatment.

Accepted for publication June 22, 2000.

This project was supported by an investigator-initiated grant from Eli Lilly & Company, Indianapolis, Ind. PRIME-MD is a trademark of Pfizer US Pharmaceuticals Inc, New York, NY.

The authors thank Carlos Blanco, MD, PhD, Renee Goodwin, PhD, Raz Gross, MD, Daniel Pilowsky, MD, and Robert Spitzer, MD, for their help with the development of the manuscript.

Corresponding author: Mark Olfson, MD, MPH, New York State Psychiatric Institute, 1051 Riverside Dr, New York, NY 10032.

REFERENCES

1. Katon WJ, Von Korff M, Lin E, et al. Collaborative management to achieve depression treatment guidelines. *J Clin Psychiatry*. 1997;58(suppl 1):20-23.
2. Tiemens BG, Ormel J, Jenner JA, et al. Training primary-care physicians to recognize, diagnose and manage depression: does it improve patient outcomes? *Psychol Med*. 1999;29:833-845.
3. McQuaid JR, Stein MB, Laffaye C, McCahill ME. Depression in a primary care clinic: the prevalence and impact of an unrecognized disorder. *J Affect Disord*. 1999;55:1-10.
4. Vazquez-Barquero JL, Garcia J, Artal Simon J, et al. Mental health in primary care: an epidemiological study of morbidity and use of health resources. *Br J Psychiatry*. 1997;170:529-535.
5. Parker T, May PA, Maviglia MA, Petrakis S, Sunde S, Gloyd SV. PRIME-MD: its utility in detecting mental disorders in American Indians. *Int J Psychiatry Med*. 1997;27:107-128.
6. Philbrick JT, Connelly JE, Wofford AB. The prevalence of mental disorders in rural office practice. *J Gen Intern Med*. 1996;11:9-15.
7. Olfson M, Fireman B, Weissman MM. Mental disorders and disability among patients in a primary care group practice. *Am J Psychiatry*. 1997;154:1734-1740.
8. Leon AC, Olfson M, Broadhead WE, et al. Prevalence of mental disorders in primary care: implications for screening. *Arch Fam Med*. 1995;4:857-861.

9. Spitzer RL, Williams JBW, Kroenke K, . Utility of a new procedure for diagnosing mental disorders in primary care: the PRIME-MD 1000 Study. *JAMA*. 1994;272:1749-1756.
10. Coyne JC, Fechner-Bates S, Schwenk TL. Prevalence, nature, and comorbidity of depressive disorders in primary care. *Gen Hosp Psychiatry*. 1994;16:267-276.
11. Hoppe SK, Leon RL, Realini JP. Depression and anxiety among Mexican Americans in a family health center. *Soc Psychiatry Psychiatr Epidemiol*. 1989;24:63-68.
12. Blacker CVR, Clare AW. The prevalence and treatment of depression in general practice. *Psychopharmacology*. 1988;95(suppl):S14-S17.
13. Barrett JE, Barrett HA, Oxman TE, Gerber PD. The prevalence of psychiatric disorders in a primary care practice. *Arch Gen Psychiatry*. 1988;45:1100-1106.
14. Von Korff M, Shapiro S, Burke JD, et al. Anxiety and depression in a primary care clinic. *Arch Gen Psychiatry*. 1987;44:152-156.
15. Schulberg HC, Saul M, McClelland M, et al. Assessing depression in primary medical and psychiatric practices. *Arch Gen Psychiatry*. 1985;42:1164-1170.
16. Hoepfer EW, Nycz GR, Cleary PD, Regier DA, Goldberg ID. Estimated prevalence of RDC mental disorder in primary care. *Int J Ment Health*. 1979;8:6-15.
17. Ormel J, Von Korff M, Ustun B, Pini S, Korten A, Oldehinkel T. Common mental disorders and disability across cultures: results from the WHO collaborative study on psychological problems in general health care. *JAMA*. 1994;272:1741-1748.
18. Brantley PJ, Mehan DJ, Ames SC, Jones GN. Minor stressors and generalized anxiety disorder among low-income patients attending primary care clinics. *J Nerv Ment Dis*. 1999;187:435-440.
19. Cleary PD, Merle M, Bush BT, Warburg MM, Delbanco TL, Aronson MD. Prevalence and recognition of alcohol abuse in a primary care population. *Am J Med*. 1988;85:466-471.
20. Manwell LB, Fleming MF, Johnson K, Barry KL. Tobacco, alcohol, and drug use in a primary care sample: 90-day prevalence and associated factors. *J Addict Dis*. 1998;17:67-81.
21. Olfson M, Weissman MM, Leon AC, Sheehan DV, Farber L. Suicidal ideation in primary care. *J Gen Intern Med*. 1996;11:447-453.
22. Zimmerman M, Lish JD, Lush DT, Farber NJ, Plescia G, Kuzma MA. Suicidal ideation among urban medical outpatients. *J Gen Intern Med*. 1995;10:573-576.
23. Robins KN, Regier DA. *Psychiatric Disorders in America: The Epidemiologic Catchment Area Study*. New York, NY: Free Press; 1991.
24. Kessler RC, McGonagle KA, Zhao S, et al. Lifetime and 12-month prevalence of DSM-III-R psychiatric disorders in the United States: results from the National Comorbidity Survey. *Arch Gen Psychiatry*. 1994;51:8-19.
25. Dohrenwend BP, Levav I, Shrout P, et al. Socioeconomic status and psychiatric disorders: the causation-selection issue. *Science*. 1992;255:946-952.
26. Regier DA, Farmer ME, Rae DS, et al. One-month prevalence of mental disorders in the United States and sociodemographic characteristics: the Epidemiologic Catchment Area Study. *Acta Psychiatr Scand*. 1993;88:35-47.
27. Howard KI, Corniolle TA, Lyons JS, Vessey JT, Lueger RJ, Saunders SM. Patterns of mental health service utilization. *Arch Gen Psychiatry*. 1996;53:696-703.
28. Gallo JJ, Marino S, Ford D, Anthony JC. Filters on the pathway to mental health care, II: sociodemographic factors. *Psychol Med*. 1995;25:1149-1160.
29. Leaf PJ, Bruce ML, Tischler GL, Freeman DH Jr, Weissman MM, Myers JK. Factors affecting the utilization of speciality and general medical mental health services. *Med Care*. 1988;26:9-26.
30. Olfson M, Pincus HA. Outpatient mental health care in nonhospital settings: distribution of patients across provider groups. *Am J Psychiatry*. 1996;153:1353-1356.
31. Miranda J, Azocar F, Komaromy M, Golding JM. Unmet mental health needs of women in public-sector gynecologic clinics. *Am J Obstet Gynecol*. 1998;178:212-217.
32. Spitzer RL, Kroenke K, Williams JBW, and the Patient Health Questionnaire Primary Care Study Group. Validation and utility of a self-report version of PRIME-MD: the PHQ Primary Care Study. *JAMA*. 1999;282:1737-1744.
33. Sheehan DV, Harnett-Sheehan K, Raj BA. The measurement of disability. *Int Clin Psychopharm*. 1996;11(suppl 3):89-95.
34. Weissman MM, Bothwell S. The assessment of social adjustment by patient self-report. *Arch Gen Psychiatry*. 1976;33:1111-1115.
35. Blazer DG, Kessler RC, McGonagle KA, Swartz MS. The prevalence and distribution of major depression in a national community sample: the National Comorbidity Survey. *Am J Psychiatry*. 1994;151:979-986.
36. Wittchen HU, Zhao S, Kessler RC, Waton WW. DSM-III-R generalized anxiety disorder in the National Comorbidity Survey. *Arch Gen Psychiatry*. 1994;51:355-364.
37. Eaton WW, Kessler RC, Wittchen HU, Magee WJ. Panic and panic disorder in the United States. *Am J Psychiatry*. 1994;151:413-420.
38. Canino GJ, Bird HR, Shrout PE, et al. The prevalence of specific psychiatric disorders in Puerto Rico. *Arch Gen Psychiatry*. 1987;44:727-735.
39. Gunnell D, Frankel S. Prevention of suicide: aspirations and evidence. *BMJ*. 1994;308:1227-1233.
40. Lomax JW. A proposed curriculum on suicide care for psychiatry residency. *Suicide Life Threat Behav*. 1986;16:56-64.
41. Bakish D. The patient with comorbid depression and anxiety: the unmet need. *J Clin Psychiatry*. 1999;60(suppl 6):20-24.