

The Quality of Care for Depressive and Anxiety Disorders in the United States

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Background: Depressive and anxiety disorders are prevalent and cause substantial morbidity. While effective treatments exist, little is known about the quality of care for these disorders nationally. We estimated the rate of appropriate treatment among the US population with these disorders, and the effect of insurance, provider type, and individual characteristics on receipt of appropriate care.

Methods: Data are from a cross-sectional telephone survey conducted during 1997 and 1998 with a national sample. Respondents consisted of 1636 adults with a probable 12-month depressive or anxiety disorder as determined by brief diagnostic interview. Appropriate treatment was defined as present if the respondent had used medication or counseling that was consistent with treatment guidelines.

Results: During a 1-year period, 83% of adults with a probable depressive or anxiety disorder saw a health care

provider (95% confidence interval [CI], 81%-85%) and 30% received some appropriate treatment (95% CI, 28%-33%). Most visited primary care providers only. Appropriate care was received by 19% in this group (95% CI, 16%-23%) and by 90% of individuals visiting mental health specialists (95% CI, 85%-94%). Appropriate treatment was less likely for men and those who were black, less educated, or younger than 30 or older than 59 years (range, 19-97 years). Insurance and income had no effect on receipt of appropriate care.

Conclusions: It is possible to evaluate mental health care quality on a national basis. Most adults with a probable depressive or anxiety disorder do not receive appropriate care for their disorder. While this holds across diverse groups, appropriate care is less common in certain demographic subgroups.

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DEPRESSIVE AND anxiety disorders are common and have a substantial impact on functioning and quality of life. National treatment guidelines for major depression document that effective treatments include antidepressant medications and cognitive-behavioral and interpersonal psychotherapies.¹⁻⁵ Research also supports the efficacy of these treatments for dysthymia, although the literature is less well developed.⁵⁻⁹ In panic disorder, treatment guidelines strongly support the efficacy of cognitive-behavioral psychotherapies, some antidepressant medications, and benzodiazepines.^{10,11} In generalized anxiety disorder (GAD), effective treatments include antidepressant medications, buspirone, benzodiazepines, cognitive-behavioral psychotherapies, and probably relaxation and unstructured therapy techniques.¹²⁻¹⁵ Although these treatments are effective, patients frequently do not receive them.¹⁶ However, there have

been few national studies of the quality of mental health care. Researchers have successfully characterized national quality of care for a variety of medical disorders,¹⁷ and it is important to know whether similar research in psychiatry can provide data to inform policy nationally. While the existing literature suggests that quality of care for common psychiatric disorders is moderate to poor across different types of treatment settings, national data are limited and not clinically detailed, and it is unclear which populations are at greatest risk for not receiving appropriate care.

The National Comorbidity Survey (NCS) surveyed a household probability sample of persons between ages 14 and 55 years, and found that 27.7% of those with major depression and 26.0% of those with dysthymia reported receiving outpatient mental health services,¹⁸ while 35.2% with panic disorder and 31.8% with GAD reported receiving such services. Although rates of use of antidepressant medication were low for persons with major depres-

MATERIALS AND METHODS

SAMPLE

The sample is from HealthCare for Communities (HCC), which is part of the Robert Wood Johnson Foundation's Health Tracking Initiative. Data are from the HCC telephone survey, which was conducted during 1997 and 1998. The design of HCC is described in detail elsewhere.³⁵ HealthCare for Communities respondents were a stratified probability sample of participants in the Community Tracking Study (CTS). The CTS was a nationally representative study of the US civilian, noninstitutionalized population during 1996 and 1997, with a response rate of 65%.³⁶ The sampling strategy in HCC was designed to improve our ability to study people with low income and people with psychiatric disorders. This was done by oversampling individuals with the following characteristics: family income below \$20,000, high psychological distress (measured using 2 items from the 12-Item Short-Form Health Survey³⁷), or any mental health specialty visit during the prior year. Of the 14,985 CTS respondents selected for HCC, 9,585 were reinterviewed, for a response rate of 64%. Informed consent was obtained verbally before the interview. In analyses, we weighted the data to be representative of the population of the United States by using CTS data to adjust for probability of selection, unit nonresponse, and nontelephone households.

MEASURES

Data are from the HCC survey, with the exception of some insurance information and demographics from the CTS survey. Major depression, dysthymia, and GAD during the past year and lifetime mania were assessed using short-form versions of the Composite International Diagnostic Interview (CIDI),³⁸ and are based on *DSM-III-R* criteria.³⁹ Kessler and colleagues³⁸ reported that the sensitivity and specificity of CIDI short-form relative to full CIDI diagnosis is

excellent, with concordance ranging from 90% to 100%. Probable panic disorder was assessed using screening items from the CIDI,⁴⁰ supplemented by additional items from the full battery that were modified for this study. To reduce potential false-positives on this instrument, for panic we required limitation in social or role functioning using 2 items from the 12-Item Short-Form Health Survey and 3 items from the Sickness Impact Profile.⁴¹ Substance abuse was assessed using the Alcohol Use Disorders Identification Test⁴² and items adapted from the CIDI. Chronic psychosis was assessed by asking respondents whether they had ever been told they had schizophrenia or schizoaffective disorder, or been hospitalized because of psychotic symptoms. Two hundred forty respondents met criteria for chronic psychosis or mania and were excluded from our analyses. Respondents were also asked whether, during the past year, they had a need for emotional or mental health help, and whether they had any of the following severe life difficulties: witnessing an assault, losing custody of children, or being homeless, sexually assaulted, incarcerated, or on parole or probation.

Use of health services during the prior 12 months was identified by self-report. Primary care provider (PCP) visits included visits, for any reason, to a primary care physician, family physician, general internist, nurse, physician assistant, or chiropractor. Mental health specialist visits included visits to a psychiatrist, psychologist, social worker, psychiatric nurse, or counselor, for "emotional or mental health problems." Respondents provided daily dosage and duration of use for medications taken "at least several times a week for a month or more," and reported on the number of counseling sessions with specialists. Counseling from PCPs was identified by asking whether the health care visit included at least 5 minutes of counseling regarding an "emotional, mental health, alcohol or drug problem."

Appropriate care for depressive and anxiety disorders was assessed for respondents with a probable disorder, and was defined as use of either appropriate psychotropic medication or appropriate counseling during the prior

sion, the survey did not obtain information on actual names or dosages of medications, so treatment appropriateness according to national practice guidelines is uncertain.¹⁹ Furthermore, NCS respondents only reported general medical visits that they thought included care for mental health problems, and this approach could lead to undercounting of mental health services since many general medical patients may not recognize that they have an emotional problem.²⁰ Otherwise, studies of quality of care for depressive or anxiety disorders are limited to reports from specific practice settings. For example, a study of primary care practices in the 1980s found that 25% to 30% of those with major depression received antidepressant medication during a 6-month period,¹⁶ and studies in a variety of other health care organizations have produced similar results.²¹⁻²⁴ The rate of appropriate treatment for persons with anxiety disorder may also be low, but there are few practice-based studies. Even in mental health specialty settings, effective treatments for anxiety disorders may be underutilized.²⁵⁻²⁸

Researchers have found lower rates of mental health treatment utilization in men,²⁹ ethnic minorities,³⁰ and

individuals with lower socioeconomic status.³¹ Also, black, young adult, and elderly individuals have been found to be less likely to visit mental health specialists,³² and this may affect which treatments are received.³³ With regard to insurance, the Epidemiologic Catchment Area Study found that access to care was better under Medicaid than for the uninsured or those with private insurance,³⁴ and the Medical Outcomes Study found that some aspects of treatment were worse in prepaid care.¹⁶ However, these results were based on coverage in the 1980s and few recent studies have identified predictors of receiving appropriate care among persons at risk for common psychiatric disorders.

This is a study of access to appropriate care among a representative household sample of adults in the United States who had a symptomatic depressive or anxiety disorder during a 1-year period in 1997 and 1998. The focus is on individuals with probable major depression, dysthymia, panic disorder, and GAD. We examine whether these individuals visit a health care provider, whether those visiting a provider receive appropriate treatment,

year. Appropriate psychotropic medication was defined as a medication that was efficacious for the individual's disorder and used at a dosage exceeding the minimum recommended dosage for an adequate duration. Specifically, for major depressive and dysthymic disorder (with or without anxiety), we used the lower end of the therapeutic dosage range for each antidepressant medication from the Agency for Health Care Policy and Research Guideline for Depression in Primary Care, updated for newer medications,¹ and required 2 or more months of use during the prior 12 months. Examples of minimum dosages are 10 mg per day for fluoxetine and 75 mg per day for desipramine. For panic disorder (with or without GAD), appropriateness criteria were based on proposed guidelines for general practitioners.¹⁰ Medication was appropriate if it included at least 2 months of an antidepressant medication (other than bupropion) at a possibly adequate dosage, or a benzodiazepine. For GAD, medication was considered appropriate if it included at least 2 months of an antidepressant medication at an adequate dosage, buspirone, or a benzodiazepine. For respondents with multiple disorders, appropriateness was evaluated for their most "significant" clinical disorder, based on the following hierarchy (from 1 to 4, in order of consideration by PCP): major depression (1), dysthymia (2), panic disorder (3), and GAD (4). To illustrate the rationale behind this hierarchy, an individual with comorbid major depression and panic disorder has appropriate treatment for both disorders if he or she has any appropriate treatment for depression (eg, an antidepressant); however, certain treatments for panic disorder (eg, a benzodiazepine alone without counseling) would not be sufficient.

Appropriate counseling was defined as at least 4 visits with a mental health specialist or 4 visits with a PCP that included counseling for mental health problems. A very similar counseling definition was used in the Medical Outcomes Study, which found that appropriate counseling or medication use was associated with improved 2-year functional outcomes in depression.⁴³

STATISTICAL ANALYSES

Estimates were calculated using SUDAAN software,⁴⁴ and take into account the complex survey design and survey clustering. Differences between percentages were evaluated using Wald statistics converted to F statistics.⁴⁵ Multiple logistic regression was used to examine the effect of individual, illness, and insurance characteristics on both use of services and receipt of appropriate care. The population for all the main models consisted of individuals with probable depression, dysthymia, panic, or GAD. Dependent variables were dichotomous, and indicated the presence of at least 1 service or appropriate care. Independent variables were the same in each model, and included age, sex, ethnic group, marital status, years of education, income, number of chronic medical disorders, and presence of a severe life difficulty or alcohol or other drug problem. Primary medical insurance was entered into the models as one of the following: private health maintenance organization, other private insurance, Medicare, Medicaid, uninsured, or other/unknown. Physical and mental health functioning scores from the 12-Item Short-Form Health Survey were included in the models to control for severity of illness. We calculated standardized predictions for variables in the models by computing the average predicted probabilities of obtaining quality care, controlling for other covariates, within sample subgroups of interest.

We examined the sensitivity of our approach to changes in the methods used to identify appropriate treatment. To do this, we developed alternative regression models that had the same independent and dependent variables, but examined a somewhat different population. First, since our main method could have included respondents with mild illnesses, we restricted the population identified as having a disorder to individuals with a limitation in social or role functioning (as defined above). Second, since our main method may have missed individuals who did not meet requirements for illness during the past year because of successful treatment, we expanded the population identified as having a disorder to include all individuals taking antidepressant medication.

and, overall, the probability of receiving appropriate care. We also analyze the effect of demographic factors, insurance type, and provider visits on receipt of appropriate treatment.

RESULTS

There were 174 respondents with dysthymia alone, 831 with major depression alone, and 317 with both disorders. There were 139 respondents with panic disorder alone, 146 with GAD alone, and 29 with both anxiety disorders. In total, 1636 respondents met criteria for 1 or more depressive or anxiety disorders, and **Table 1** presents the characteristics of these individuals. Compared with other persons, individuals with a depressive or anxiety disorder were significantly more likely to be female, unmarried, unemployed, and to have problems with drugs or alcohol ($P < .0001$, for each comparison). They also had significantly fewer years of education, lower family income, more life difficulties and chronic medical disorders, and were more likely to have no medical insur-

ance ($P < .0001$ for each comparison). While respondents provided information on medical insurance, they were often unaware of their specific mental health benefits, and hence this could not be assessed.

VISITS TO PROVIDERS AND USE OF MENTAL HEALTH TREATMENTS

During a 1-year period, 80.8% of individuals with a probable anxiety or depressive disorder saw a PCP. While 19.4% had seen a mental health specialist, only 1.9% saw a specialist without seeing a PCP. Primary care provider contact was most common with the anxiety disorders, and specialist contact was most common when both anxiety and depressive disorders were present (**Table 2**). Although provider visits were common, receipt of mental health treatment was not. Among individuals with a probable disorder, 25.6% received some antidepressant or anxiolytic medication, and 20.6% received appropriate medication; 31.3% received some counseling, and 17.6% received appropriate counseling. In all, 30.4% received

Table 1. Characteristics, During 1997 and 1998, of People With and People Without a Probable Depressive or Anxiety Disorder in the United States*†

Characteristic	People With a Depressive or Anxiety Disorder (N = 1636)	People With No Depressive or Anxiety Disorder (N = 7709)
Age, y, mean ± SD	44.4 ± 15.3	47.5 ± 17.6
Female sex, No. (%)	1127 (64.5)	4556 (51.0)
Ethnic group, No. (%)		
White	1254 (71.1)	5886 (72.7)
Black	196 (14.6)	857 (11.3)
Hispanic	107 (9.7)	496 (9.7)
Other	79 (4.6)	470 (6.3)
Married/living with a partner, No. (%)	898 (54.2)	4914 (66.1)
Education, No. (%)		
High school or less	865 (56.2)	3659 (47.2)
Some college	424 (26.3)	1918 (28.6)
4 y of college or more	347 (17.5)	2132 (24.2)
Unemployed, No. (%)	153 (8.4)	314 (3.5)
Family income, \$, mean ± SD	40 300 ± 39 700	50 900 ± 51 100
Primary medical insurance, No. (%)		
Private, non-HMO	481 (27.3)	2524 (32.7)
Private, with an HMO	511 (28.4)	2376 (29.5)
Medicare	203 (16.0)	1295 (20.0)
Medicaid	102 (7.3)	215 (2.5)
No insurance	250 (18.0)	874 (11.4)
Other or unknown	67 (3.0)	325 (3.9)
No. of life difficulties, mean ± SD	0.69 ± 0.82	0.43 ± 0.65
No. of chronic medical disorders, mean ± SD	2.5 ± 2.3	1.2 ± 1.4
Alcohol or other drug problem, No. (%)	223 (14.0)	517 (6.4)
SF-12, mean ± SD		
Physical scale score	43.1 ± 7.6	47.2 ± 5.8
Mental scale score	41.6 ± 7.4	46.2 ± 5.2

*HMO indicates health maintenance organization; SF-12, 12-Item Short-Form Health Survey.

†The population in the 2 columns are different at $P < .0001$ on all items, except ethnic group, which was different at $P = .03$.

at least 1 appropriate treatment for their disorder (95% CI, 27.7%-33.1%). The highest rates of treatment were found in people with both an anxiety and a depressive disorder.

FACTORS AFFECTING PROVIDER CONTACT AND TREATMENT QUALITY

Within people with a depressive or anxiety disorder, provider contact was significantly more likely among individuals with more years of education or a greater number of medical disorders, and was less likely among individuals with no medical insurance (**Table 3**). On the other hand, receipt of appropriate care was strongly influenced by demographic factors and not by presence or type of insurance. As shown in Table 3, receipt of appropriate care was affected by the same factors in people who had seen a provider as in the general population. Specifically, the odds of receiving appropriate care varied significantly by sex, ethnicity, age, and years of edu-

Table 2. Adults With a Probable Depressive or Anxiety Disorder Who Visited a Health Care Provider or Used Mental Health Treatment During a 1-Year Period in 1997 and 1998

	Adults With a Depressive Disorder Alone (n = 883), %	Adults With an Anxiety Disorder Alone (n = 314), %	Adults With Both a Depressive and an Anxiety Disorder (n = 439), %
Any primary care practitioner visit	77.7	84.3	84.5
Any mental health specialist visit	17.7	12.8	28.3
Any antidepressant or anti-anxiety medication use	20.5	21.7	40.9
Appropriate medication use*	15.6	17.5	30.3
Any counseling use	29.9	20.3	43.0
Appropriate counseling use*	14.8	10.8	28.9
Appropriate treatment use*	25.3	23.2	46.0

*For the definition of appropriate treatment, please see the "Materials and Methods" section.

cation, but not by income or insurance. The standardized prediction of appropriate care was 33% for women, 26% for men, 34% for whites, 24% for Hispanics, and 17% for blacks. In terms of age, older and younger people were both less likely to receive appropriate care. The standardized prediction of appropriate care was 20% for ages 18 to 29 years, 37% for ages 30 to 39 years, 32% for ages 40 to 49 years, 37% for ages 50 to 59 years, and 22% for 60 years and older.

Overall, poor-quality care (defined as no care or inappropriate care) was quite common. Poor-quality care occurred in 80.5% of individuals with PCP visits only (95% CI, 77.3%-83.8%), 11.4% of individuals with mental health specialist visits only (95% CI, 0.0%-24.7%), and 10.1% of individuals with both types of visits (95% CI, 5.1%-15.2%). Within patients seeing PCPs, those receiving poor-quality care were less likely to report that mental health problems were evaluated (35.6% vs 65.3%, $P < .0001$), psychiatric medications were recommended (11.4% vs 55.7%, $P < .0001$), or a referral to a mental health specialist was made (4.1% vs 23.5%, $P < .0001$). The overall population with poor-quality care was much less likely to perceive a need for mental health care (31.4% vs 70.0%, $P < .0001$).

COMMENT

This project indicates that it is possible to nationally evaluate and monitor treatment quality for psychiatric conditions, just as quality has been evaluated in other medical disorders. When care is examined, the rate of access to appropriate treatment for depressive and anxiety disorders is quite low, under 35% for the US adult population with a disorder, although closer to 50% for those with both types of disorder. These findings reflect practice and utilization patterns in 1997 and 1998, well within the era of newer antidepressant medications and widespread dissemination of managed care in primary and specialty care. The substantial problems with access to mental health

Table 3. The Effect, in Adults With a Probable Depressive or Anxiety Disorder, of Individual Characteristics on Visiting a Health Care Provider and Receiving Appropriate Care*

Characteristic	Had Contact With a Health Care Provider During the Past Year (N = 1542), OR (95% CI)	Received Appropriate Care, † OR (95% CI)	
		Population With Provider Contact (N = 1305)	National Population (N = 1537)
Age‡			
Decades	1.64 (0.90-2.99)	3.84 (1.99-7.40)	3.82 (2.03-7.18)
Decades squared	0.95 (0.89-1.02)	0.86 (0.80-0.92)	0.86 (0.81-0.92)
Female sex	1.27 (0.87-1.87)	1.52 (1.03-2.23)	1.60 (1.11-2.31)
Ethnic group			
White
Black	0.60 (0.36-1.01)	0.44 (0.26-0.73)	0.39 (0.23-0.64)
Hispanic	0.90 (0.46-1.76)	0.60 (0.32-1.12)	0.58 (0.32-1.04)
Other	1.13 (0.42-3.04)	0.54 (0.26-1.13)	0.57 (0.26-1.23)
Married/living with a partner	1.05 (0.72-1.52)	0.86 (0.56-1.32)	0.88 (0.58-1.34)
Education, y	1.25 (1.14-1.37)	1.07 (1.00-1.14)	1.10 (1.03-1.17)
Family income, §§			
Dichotomous (0 or >0)	1.40 (0.08-24.00)	0.19 (0.01-6.35)	0.44 (0.04-5.50)
Log transformed	1.10 (0.91-1.31)	1.05 (0.80-1.38)	1.05 (0.83-1.34)
Primary medical insurance			
Private, non-HMO
Private, HMO	0.84 (0.48-1.48)	1.06 (0.69-1.62)	0.99 (0.66-1.49)
Medicare	1.14 (0.47-2.75)	1.13 (0.58-2.19)	1.09 (0.57-2.09)
Medicaid	0.50 (0.24-1.06)	1.20 (0.60-2.38)	1.01 (0.55-1.86)
No insurance	0.46 (0.25-0.82)	1.11 (0.57-2.15)	0.85 (0.44-1.62)
Other or unknown	0.48 (0.22-1.04)	1.46 (0.53-4.05)	1.03 (0.45-2.38)
Life difficulties, No.	1.42 (0.78-2.58)	1.67 (0.95-2.95)	1.72 (0.99-2.99)
Chronic medical disorders, No.	1.31 (1.14-1.50)	1.09 (1.00-1.19)	1.14 (1.05-1.24)
Alcohol or other drug problem	0.71 (0.42-1.18)	1.39 (0.84-2.28)	1.24 (0.80-1.92)
12-Item Short-Form Health Survey			
Physical scale score	1.02 (0.99-1.05)	0.98 (0.95-1.01)	0.98 (0.95-1.01)
Mental scale score	1.01 (0.98-1.04)	0.98 (0.95-1.00)	0.98 (0.95-1.01)

*OR indicates odds ratio; CI, confidence interval; HMO, health maintenance organization; and ellipses, the omitted dummy variable.

†For the definition of appropriate care, please see the "Materials and Methods" section.

‡Age was entered in the model as both decades and decades squared to better detect a nonlinear effect.

§Income was entered as both dichotomous and log-transformed, since the original income variable was not normally distributed.

treatment occur even among persons receiving health care. In fact, 76% of individuals with poor-quality care had seen a health care professional during a 1-year period. Most had been seen in primary care settings, making these promising locations for identifying individuals who could benefit from treatment. While the chances of appropriate care are much higher for individuals who have mental health specialist contact, these are probably individuals who are more accepting of psychiatric diagnosis and treatment. We found that persons not receiving appropriate care were much less likely to think they needed treatment for an emotional problem. Primary care providers carry the burden of recognizing cases among patients not presenting for psychological treatment, a task that mental health specialists may not have to face.

The policy significance of our findings is enhanced by identification of individuals at highest risk for not receiving appropriate care for a depressive or anxiety disorder. A large amount of the literature suggests that the effect of insurance on quality is inconsistent.⁴⁶ We found that insurance had a significant effect on whether an ill individual would see a provider, but no effect on whether appropriate care would be received. In part, this may have occurred because most visits were in primary care, where the rate of appropriate treatment was low. We were unable to evaluate generosity of specific coverage for men-

tal health services because people were too uncertain about this aspect of their insurance. This is an important area for further study. In any case, our findings suggest that quality problems exist across insurance types and the uninsured. This is consistent with previous studies suggesting that simply providing insurance is unlikely to substantially improve rates of appropriate care in people with mental health disorders.⁴⁷ Rather, quality improvement programs may need to be implemented within various types of insurance programs and in the public sector to enhance awareness and utilization of appropriate treatment options.

Unlike insurance, demographic factors had little effect on whether an individual would see a provider, but a large effect on whether appropriate care would be received. For instance, despite the fact that blacks are as likely as whites to see a provider, they are significantly less likely to receive appropriate care. This ethnic disparity in quality of care is similar to findings for a variety of other medical conditions.⁴⁸ Overall, groups at very high risk include men, blacks, older adults, young adults, and people with less than a high school education. Our findings are consistent with numerous studies showing that women are much more likely than men to use outpatient mental health services.²⁹ We also find that lower socioeconomic status is strongly associated with not re-

ceiving appropriate care. These risk factors hold in both in the general population and in the population that sees a health care provider. Our findings emphasize the salience of the surgeon general's current efforts to redress differences in quality of care for major disease conditions based on socioeconomic or ethnic status differences, and suggest that major psychiatric conditions should be considered for such an effort.

An encouraging finding was that when an antidepressant or anxiolytic medication is used, it is often used at a dosage and duration that may be effective. This suggests that the main problem is identifying those in need, offering them appropriate care, and helping them accept this care. This represents a change from the 1980s, and may be because of the widespread availability of selective serotonin reuptake inhibitor medications that are relatively easy to use at an effective dosage. Indeed, we found that selective serotonin reuptake inhibitors now account for 56% of all antidepressant medications used for depression and anxiety, and are usually prescribed at an adequate dosage. For counseling, there was a greater difference between using any counseling and receiving appropriate care, with less than half of those with any counseling receiving at least 4 sessions. With benefits declining and behavioral managed care becoming more prevalent, it may be more difficult to obtain more than a few visits, or there may be other barriers such as patients not perceiving a need for ongoing counseling or experiencing financial barriers, such as copayments.

One limitation of this study is that we used a brief diagnostic screening instrument to identify people with a probable disorder. Indeed, brief measures are required when implementing quality assessment in large national samples. A recent study compared a similar brief diagnostic assessment with a structured, clinical assessment, and found that the brief assessment was highly specific, though not very sensitive.⁴⁹ Therefore, one would expect that most of the people we identified had, in fact, a depressive or anxiety disorder. Also, to examine the sensitivity of our approach to variation in severity of illness, we reran the model predicting appropriate care after confining the population to those with a functional limitation ($n=1201$). In the population with a depressive or anxiety disorder plus a functional limitation, the positive predictive value of our screeners should be even higher (and need for treatment quite certain). The only substantive difference between this model and the main model was that that having a chronic medical disorder was more strongly associated with receiving appropriate care. Finally, the Partners in Care Study⁵⁰ examined persons who met screening criteria for probable depressive disorder but did not have current disorder based on full diagnostic assessment, and found that their outcomes improved with a quality improvement program. Thus, rates of treatment among a broader at-risk sample are meaningful to practice policy.

Our use of a cross-sectional strategy to select individuals with a disorder means that we cannot distinguish chronic refractory illness from incident conditions, or identify people who were successfully treated more than a year before the interview, and had no symptoms for the past year because of continued treatment. To examine the effect that this may have had, we ran sen-

sitivity analyses in a population that included people with a depressive or anxiety disorder plus people who had no disorder but were using antidepressant medication. Using this alternative approach, the rate of appropriate care increased from 30.4% to 40.2%, but predictors of appropriate care did not change.

It is noteworthy that we found low rates of appropriate care, even though we used a generous definition of appropriate counseling, requiring only 4 professional visits and only 5 minutes of discussion in a primary care visit. We were unable to measure the content of counseling visits or to reliably identify specific forms of effective treatments. Indeed, a criterion standard for defining effective counseling in the context of usual practice does not exist. Also, our reliance on self-report of service use could have led to underreporting or misreporting of medication usage or counseling. However, our model was robust to variation in our assumptions, and our major findings were determined mostly by the presence of any potentially effective treatment. Also, the method we used to measure appropriateness is very similar to that used in the Medical Outcomes Study,^{16,43} which demonstrated that this definition of treatment appropriateness affects outcomes.

Another potential limitation of this study is that the accuracy of the results may have been affected by the response rate, which is compounded by the initial response rate in CTS. We adjusted our findings statistically for response using detailed CTS information on nonrespondents. While we cannot know the extent to which this adjustment was successful, features of our findings are consistent with prior research. Compared with NCS, we found similar prevalence estimates for disorders, similar rates of treatment utilization in anxiety, and modestly higher rates of treatment utilization in depression. In primary care, we found rates of mental health treatment use that are similar to those reported by the Medical Outcomes Study using 1980s data.

Many factors can contribute to why people who need care do not receive it.⁵¹ These include, for instance, perceived need, willingness to accept care, insurance coverage, detection by providers, and knowledge and beliefs of providers regarding effective treatment. Findings from this study support efforts to improve care through either public education or quality improvement interventions. Recent research suggests that while a majority of the public identifies major depression as a mental illness, psychiatric disorders continue to be strongly stigmatized.⁵² We found that people not receiving appropriate care were much less likely to have had their mental health problems evaluated, and much less likely to believe they needed mental health treatment. Public and patient education efforts are needed to increase the extent to which people value treatment for common psychiatric disorders and demand appropriate care. Quality improvement efforts should focus on strategies that bring effective treatments to people—whether through improving practice infrastructure, enhancing benefit design, or implementing outreach programs. Clinical research has made substantial progress in establishing efficacious treatments, and progress must now proceed on dissemination to the public, especially for vulnerable subpopulations.

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