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National Trends in the Outpatient Treatment of Depression

Mark Olfson, MD, MPH

Steven C. Marcus, PhD

Benjamin Druss, MD

Lynn Elinson, PhD

Terri Tanielian, MA

Harold Alan Pincus, MD

DEPRESSIVE DISORDERS ARE highly prevalent in the United States.^{1,2} Results from 2 large community-based mental health surveys, the National Institute of Mental Health Epidemiologic Catchment Area (ECA) survey (1980-1982) and the National Comorbidity Survey (NCS) (1990-1992), suggest that the 1-year prevalence of major depression in the adult population is between 5.0%¹ and 10.3%.² Cross-national epidemiologic research further suggests that major depression is common in Europe, Canada, New Zealand, and, to a lesser extent, Taiwan and Korea.³

Depressive disorders often impair social, occupational, and role functions.⁴⁻⁶ The detrimental effects of depression on quality of life and daily function match those of heart disease and exceed those of diabetes, arthritis, and peptic ulcer disease.⁷ According to the Global Burden of Disease Study,⁸ unipolar major depression is the fourth leading cause of worldwide disability and is expected to become the second leading cause by 2020.

Controlled clinical trials demonstrate that antidepressants and some psychotherapies significantly reduce the symptoms of depression.⁹⁻¹¹ Antidepressant medications are clinically effective across the full range of severity of major depressive disorders.^{12,13} In ad-

Context Recent advances in pharmacotherapy and changing health care environments have focused increased attention on trends in outpatient treatment of depression.

Objective To compare trends in outpatient treatment of depressive disorders in the United States in 1987 and 1997.

Design and Setting Analysis of service utilization data from 2 nationally representative surveys of the US general population, the 1987 National Medical Expenditure Survey (N=34459) and the 1997 Medical Expenditure Panel Survey (N=32636).

Participants Respondents who reported making 1 or more outpatient visits for treatment of depression during that calendar year.

Main Outcome Measures Rate of treatment, psychotropic medication use, psychotherapy, number of outpatient treatment visits, type of health care professional, and source of payment.

Results The rate of outpatient treatment for depression increased from 0.73 per 100 persons in 1987 to 2.33 in 1997 ($P<.001$). The proportion of treated individuals who used antidepressant medications increased from 37.3% to 74.5% ($P<.001$), whereas the proportion who received psychotherapy declined (71.1% vs 60.2%, $P=.006$). The mean number of depression treatment visits per user declined from 12.6 to 8.7 per year ($P=.05$). An increasingly large proportion of patients were treated by physicians for their condition (68.9% vs 87.3%, $P<.001$), and treatment costs were more often covered by third-party payers (39.3% to 55.2%, $P<.001$).

Conclusions Between 1987 and 1997, there was a marked increase in the proportion of the population who received outpatient treatment for depression. Treatment became characterized by greater involvement of physicians, greater use of psychotropic medications, and expanding availability of third-party payment, but fewer outpatient visits and less use of psychotherapy. These changes coincided with the advent of better-tolerated antidepressants, increased penetration of managed care, and the development of rapid and efficient procedures for diagnosing depression in clinical practice.

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dition, specific forms of time-limited psychotherapy are as effective as antidepressants for mild to moderate depressions.^{13,14}

Most individuals with depression receive no treatment for their symptoms.^{1,15,16} According to a recent report of the surgeon general, promoting treatment for people with depression is

an even more significant problem than developing more effective treatments.¹⁷ In comparison to the extensive literature on the efficacy of psychotherapy and pharmacologic treatments, remarkably little is known about access to treatment for depression and the treatment experiences of those who gain access. The late 1980s

Author Affiliations: Department of Psychiatry, New York State Psychiatric Institute, College of Physicians and Surgeons of Columbia University, New York City (Dr Olfson); University of Pennsylvania School of Social Work, Philadelphia (Dr Marcus); Department of Psychiatry, Yale University School of Medicine, New Haven, Conn (Dr Druss); and National Institute of Occupational Safety and Health, Pittsburgh Research

Laboratory (Dr Elinson), RAND Corporation (Ms Tanielian and Dr Pincus), and Department of Psychiatry, University of Pittsburgh (Dr Pincus), Pittsburgh, Pa.

Corresponding Author and Reprints: Mark Olfson, MD, MPH, Department of Psychiatry, New York State Psychiatric Institute, College of Physicians and Surgeons of Columbia University, 1051 Riverside Dr, New York, NY 10032 (e-mail: olfsonm@child.cpmc.columbia.edu).

and first half of the 1990s was a period of significant change in the delivery of mental health services, including the growth of managed care and the development of selective serotonin reuptake inhibitor (SSRI) medications. Given these changes, there is a dearth of information regarding changes over time in characteristics of persons treated for depression.

In this article, we examine national trends in the care of outpatients with depression using data from the 1987 National Medical Expenditure Survey (NMES) and the 1997 Medical Expenditure Panel Survey (MEPS). These surveys provide large, nationally representative samples and use methods that permit comparisons to be made across the 2 points in time.

METHODS

Sources of Data

Data were drawn from the household component of the 1987 NMES¹⁸ and 1997 MEPS.¹⁹ Both surveys were sponsored by the Agency for Healthcare Research and Quality to provide national estimates of the use, expenditures, and financing of health services. The NMES and MEPS were conducted as national probability samples of the US civilian, noninstitutionalized population and were designed to provide nationally representative estimates to be compared over time.

Study Samples

The 1987 NMES used a sampling design in which 15 590 households were selected from within 165 geographic regions across the United States. A sample of 34 459 individuals was included in the study, representing a response rate of 80.1%. The 1997 MEPS household component was drawn from a nationally representative subsample of the 1995 National Health Interview Survey, which used a sampling design similar to that of the 1987 NMES. A sample of 32 636 participants from 14 147 households was interviewed. This represents a 74.1% response rate. For both surveys, a designated informant was queried about all related persons who lived in the household.

The Agency for Healthcare Research and Quality devised weights to adjust for the complex survey design and yield unbiased national estimates. The sampling weights also adjust for nonresponse and poststratification to population totals based on US census data. More complete discussions of the design, sampling, and adjustment methods are presented elsewhere.^{19,20}

Structure of Survey

Households selected for the 1987 NMES household survey were interviewed 4 times to obtain health care utilization information for the 1987 calendar year.¹⁸ The 1997 MEPS included a series of 3 in-person interviews for 1997.¹⁹ In both surveys, respondents were asked to record medical events as they occurred in a calendar or diary, which was reviewed in-person during each interview. Written permission was obtained from survey participants to contact medical practitioners they or household members reported seeing during the survey period to verify service use, medications, charges, and sources and amounts of payment. Verification procedures were implemented for all pharmacy purchases, health maintenance organization visits, and outpatient hospital visits and for half of office-based visits.

Visits for Depression

Respondents were asked the reason for every outpatient visit during the reference period. Conditions were recorded by interviewers as verbatim text and then subsequently coded by professional coders according to the *International Classification of Diseases, Ninth Revision (ICD-9)*, as revised for the National Health Interview Survey.²¹ Interviewers each underwent 80 hours of training, and coders all had degrees in nursing or medical record administration. A total of 5% of records were rechecked for errors; error rates in these rechecks were less than 2.5%. A staff psychiatric nurse established mental disorder diagnoses in cases of diagnostic ambiguity or uncertainty. Respondents who made 1 or more outpatient visits coded for the purpose of major depressive disorder, single epi-

sode (*Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition [DSM-IV]/ICD-9 code 296.2*); major depressive disorder, recurrent (*DSM-IV/ICD-9 code 296.3*); dysthymic disorder (*DSM-IV/ICD-9 code 300.4*); or depressive disorder, not otherwise specified (*DSM-IV/ICD-9 code 311*) were defined as having received treatment for depression.

Health Care Practitioners

The MEPS and NMES booklets solicit information on the type of health care professionals providing treatment at each visit. We classified health care professionals into the following groups: physicians of all specialties (a breakdown by physician specialty was not available for 1997), social workers, psychologists, and a residual group of other providers that included nurses, nurse practitioners, physician assistants, chiropractors, and other health care practitioners.

Psychotherapy

The NMES and MEPS asked respondents the type of care provided during each outpatient visit using a flash card with various response categories. Visits that included a specific indication that "psychotherapy/mental health counseling" was provided are considered psychotherapy visits.

Medications

The NMES and MEPS asked for all prescribed medicines associated with each health care visit. Respondents were asked to supply the names of any prescribed medications purchased or otherwise obtained, the first and last dates taken, the number of times obtained, and the conditions associated with each medicine. We focus on prescribed psychotropic medications associated with visits for the treatment of depression. Psychotropic medications were classified as antidepressants, anxiolytics, antipsychotics, mood stabilizers, or stimulants according to the *1997 Physicians' Desk Reference*.²² A subcategory of antidepressants was created for SSRIs that included fluoxetine hydrochloride, sertraline hydrochloride, paroxetine, and

fluvoxamine maleate. A subcategory of newer antipsychotics included clozapine, olanzapine, and risperidone.

Analysis Plan

Rates of treatment for depression per 100 persons for each survey year were computed stratified by sociodemographic characteristics. We then examined sociodemographic characteristics of respondents who reported 1 or more health care visits for depression in either survey. The χ^2 test was used to examine the strength of association between rates of treatment of depression within sociodemographic categories and across survey years. Wald F tests were used to identify differences in means of continuous variables between the 2 survey years. An examination was also made of treatment characteristics of individuals (“patients”) who reported receiving treatment for depression in each survey year.

We used a logistic regression model to evaluate the association between survey year and psychotropic medication prescription. To adjust for changes in patient characteristics between the survey years, we controlled for respondent age, sex, race, marital status, education, employment status, and insurance status. Logistic regression models were also used to estimate the effect of survey year on rate of psychotherapy, antidepressant medication, and the combination of psychotherapy and medication treatment. A multiple linear regression model was used to evaluate the association between survey year and number of psychotherapy visits, controlling for the various sociodemographic covariates. All statistical analyses were performed using the SUDAAN software package²³ to accommodate the complex sample design and the weighting of observations. The α value was set at .05 and all tests were 2-sided.

RESULTS

Rate of Treatment

Between 1987 and 1997, there was a significant increase in the overall rate of outpatient treatment of depression. The rate of treatment increased from 0.73

per 100 persons in 1987 to 2.33 in 1997 (TABLE 1). In contrast, there was little change during the study period in the rate within the general population of persons who received any outpatient general medical treatment (74.1% in 1987 and 72.4% in 1997).

Sociodemographic Groups and Characteristics

A significant increase in the rate of outpatient treatment of depression occurred across all sociodemographic groups examined. As a proportion of the baseline rate of treatment, Hispanic and black persons experienced slightly larger increases than white persons (Table 1). However, the rate of outpatient treatment for Hispanics and blacks remained well below the rate of whites. The high-

est rates of treatment were for divorced, separated, or widowed individuals, those with at least a high school education, and unemployed persons (Table 1).

In both survey years, most patients who received outpatient treatment for depression were between 18 and 64 years of age, white, female, employed, and privately insured. Slightly less than half were married or had more than a high school education (TABLE 2).

Insurance

There was a significant increase in the rate of outpatient treatment for depression regardless of insurance status. However, the rate of treatment among individuals without insurance remained below that of individuals with either private or public insurance (Table 1).

Table 1. National Rates of Treatment of Depression in 1987 and 1997 Stratified by Sociodemographic Characteristics*

Characteristic	Rates per 100 Population of Treated Depression		χ^2 †
	1987 (N = 34 459)	1997 (N = 32 636)	
Total	0.73	2.33	158.6
Age, y			
<18	0.28	.68	11.1
18-64	0.97	3.17	137.8
≥65	0.57	1.95	24.2
Sex			
Female	1.00	3.06	114.9
Male	0.46	1.58	55.3
Race/ethnicity			
Black	0.28	1.02	13.8
Hispanic	0.38	1.41	21.6
White‡	0.84	2.69	137.4
Marital status			
Married	0.75	2.30	79.1
Divorced/separated	1.61	5.50	40.2
Widowed	1.11	3.46	16.1
Not married	0.93	2.82	34.7
Education			
<High school	0.69	1.66	25.5
High school	0.81	3.00	66.3
>High school	1.19	3.13	57.1
Employment status			
Employed	0.63	1.87	88.6
Unemployed	1.00	3.82	82.3
Insurance			
Private insurance	0.77	2.16	103.7
Public insurance	0.74	3.17	84.8
No insurance	0.48	1.54	15.4

*Data are from 1987 National Medical Expenditure Survey and 1997 Medical Expenditure Panel Survey.

†df = 1, P < .001.

‡White includes white, American Indian, Alaska native, and Asian or Pacific Islander.

Pharmacologic Treatment

The proportion of individuals treated for depression who received a prescribed psychotropic medication increased from 44.6% in 1987 to 79.4% in 1997 (TABLE 3). After controlling for the possible confounding effects of sociodemographic characteristics, individuals treated for depression were 4.5 times more likely to be treated with a psychotropic medication in 1997 than in 1987 (TABLE 4). During this period, the proportion of pharmacy costs paid by third-party payers increased from 39.3% to 55.2% (Table 3).

Antidepressants were the most commonly prescribed medications for the treatment of depression. After adjusting for confounding sociodemographic factors, patients treated for depression were 4.8 times more likely to receive an

antidepressant in 1997 than in 1987 (Table 4). The increase in antidepressant use was primarily attributable to SSRIs, a class of antidepressant medication that was unavailable in 1987. Selective serotonin reuptake inhibitors were prescribed to more than half (58.3%) of individuals who received outpatient treatment for depression in 1997.

Anxiolytics were the second most commonly prescribed class of psychotropic medication in both survey years, but were prescribed to fewer than 1 in 7 patients treated for depression. Anxiolytics were followed by mood stabilizers and antipsychotics. Stimulants were rarely prescribed (Table 3).

Psychotherapy

With the increase in rate of outpatient treatment for depression, there was a

corresponding increase in the rate of psychotherapy for depression. However, among persons treated for depression, the percentage who received psychotherapy declined from 71.1% (1987) to 60.2% (1997) (Table 3). Among those who received psychotherapy, the mean annual number of psychotherapy visits declined from 12.6 visits in 1987 to 8.7 visits in 1997. This decline remained statistically significant after controlling for the effects of patient sociodemographic characteristics (Table 4). During this period, there was an increase in the proportion of psychotherapy costs borne by third-party payers (Table 3).

Combined Treatment

The proportion of patients treated for depression who received at least 1 psychotherapy visit along with a prescription for a psychotropic medication increased from 28.8% in 1987 to 48.1% in 1997. The comparable proportions who received at least 1 psychotherapy visit and a prescription for an antidepressant were 23.2% in 1987 and 45.2% in 1997. Treated patients in 1997 were almost twice as likely to receive psychotherapy and a psychotropic medication than they were in 1987 after controlling for confounding sociodemographic factors (odds ratio, 2.0) (Table 4). They were also 2.4 times more likely to receive psychotherapy and an antidepressant medication.

Provider Type

During the study period, there was a significant increase in the proportion of patients whose treatment of depression involved visits to a physician (Table 3). By 1997, more than 8 (87.3%) of 10 patients who received outpatient treatment of depression were treated by a physician compared with 68.9% in 1987. Conversely, the percentage who received treatment from psychologists declined (29.8% vs 19.1%). Treatment of depression by social workers remained little changed and relatively uncommon.

COMMENT

Significant growth occurred in the number of Americans who received treat-

Table 2. Sociodemographic Characteristics of Persons Treated for Depression in 1987 and 1997*

Characteristic	Persons Treated for Depression, %		χ^2	P Value
	1987 (n = 223)	1997 (n = 755)		
Age, y				
<18	10.6	7.8	$\chi^2_2 = 1.5$.48
18-64	80.8	82.1		
≥65	8.7	10.2		
Sex				
Female	69.9	66.9	$\chi^2_1 = 0.5$.50
Male	30.1	33.1		
Race/ethnicity				
Black	4.6	5.5	$\chi^2_2 = 3.9$.15
Hispanic	4.1	6.9		
White†	91.3	87.6		
Marital status				
Married	48.2	42.9	$\chi^2_3 = 2.3$.51
Divorced/separated	19.2	23.2		
Widowed	9.4	8.3		
Not married	23.3	25.6		
Education				
<High school	20.3	24.3	$\chi^2_2 = 1.4$.49
High school	32.3	31.6		
>High school	47.4	44.1		
Employment status				
Employed	62.5	60.8	$\chi^2_1 = 0.2$.69
Unemployed	37.5	39.2		
Insurance				
Private insurance	81.6	66.8	$\chi^2_1 = 17.2$	<.001
Public insurance	25.7	36.6	$\chi^2_1 = 7.9$.005
No insurance	13.2	8.2	$\chi^2_1 = 4.1$.04

*Data are from 1987 National Medical Expenditure Survey and 1997 Medical Expenditure Panel Survey. Percentages are weighted estimates. The insurance groups are not mutually exclusive.

†White includes white, American Indian, Alaska native, and Asian or Pacific Islander.

ment for depression during the past decade, and at the same time the treatments they received underwent a profound transformation. Antidepressant medications became established as a mainstay, psychotherapy sessions became less common and fewer among those receiving treatment, and physicians assumed a more prominent role. These changes suggest that access to mental health services has increased and that there has been an increased emphasis on pharmacologic treatments.

Several factors may have contributed to these trends. Beginning with the introduction of fluoxetine in late 1987 and followed by several other SSRIs and antidepressants with atypical mechanisms of action, there has been a steady broadening of the pharmacologic options available to treat depression. The new medications tend to have fewer adverse effects,^{24,25} require less complicated dosing regimens, and pose less danger when taken in overdose than the older tricyclic antidepressants. The comparative safety and ease of prescribing SSRIs and the other newer antidepressants may have led physicians to lower the symptom severity threshold at which they decide to prescribe an antidepressant.²⁶ If the availability of the newer medications tipped the balance in favor of diagnosing and treating depression, this would help explain both the increase in the overall rate of treatment and the increase in the proportion of treated cases who filled prescriptions for antidepressant medications.

The pharmaceutical industry also engaged in a concerted effort to promote the increased sale of these new antidepressant medications through vigorous advertising campaigns directed at physicians, other health care professionals, and more recently the general public.^{27,28} In addition, medications to treat depression have been a featured topic of lead articles in national news magazines, best-selling books, and widely watched television talk shows. A new generation of screening and diagnostic instruments, developed through partnerships between industry and academia, has also become available to fa-

cilitate the rapid and efficient detection of depression in routine practice.²⁹⁻³¹

Beginning in late 1987, the federal government embarked on a public health campaign to educate the public and the medical community about the recognition and treatment of depression.³² In 1991, the National Depression Screening Day program was inaugurated to increase awareness and treatment of depression. By 1997, there

were more than 2800 screening sites in the 50 states and Canada.³³ These campaigns have underscored the importance of pharmacologic treatments. In addition, there have been institutional efforts to improve the diagnosis of depression and influence physician prescribing practices through the publication of treatment guidelines.^{12,13}

As a result of these developments, the public may have become more accept-

Table 3. Treatment Characteristics of Persons Treated for Depression in 1987 and 1997*

Treatment	1987 (N = 223)	1997 (N = 775)	Statistic	P Value
Mean No. of visits	11.6	7.5	F _{1,883} = 4.3	.04
Mean third-party payment of visits, %	49.3	69.3	F _{1,883} = 23.8	<.001
Psychotherapy, %	71.1	60.2	χ ² ₁ = 7.6	.006
Mean No. of visits	12.6	8.7	F _{1,883} = 3.8	.05
Mean third-party payment, %	48.1	65.6	F _{1,835} = 13.0	<.001
Pharmacotherapy, %	44.6	79.4	χ ² ₁ = 48.7	<.001
Antidepressants	37.3	74.5	χ ² ₁ = 56.6	<.001
SSRIs	0	58.3	χ ² ₁ = 203.1	<.001
Other	37.3	28.0	χ ² ₁ = 5.0	.03
Anxiolytics	15.7	13.1	χ ² ₁ = 0.6	.42
Benzodiazepines	15.7	10.0	χ ² ₁ = 3.3	.07
Other	1.2	3.9	χ ² ₁ = 5.5	.02
Antipsychotics	4.6	3.6	χ ² ₁ = 0.4	.53
Mood stabilizers	3.1	8.8	χ ² ₁ = 11.1	<.001
Stimulants	0.1	0.7	χ ² ₁ = 3.5	.06
Mean No. of prescriptions	7.1	7.8	F _{1,883} = 0.5	.48
Mean third-party payment, %	39.3	55.2	F _{1,883} = 11.0	<.001
Psychotherapy and pharmacotherapy, %	28.8	48.1	χ ² ₁ = 21.0	<.001
Psychotherapy and antidepressants	23.2	45.2	χ ² ₁ = 29.3	<.001
Provider type, %				
Physician	68.9	87.3	χ ² ₁ = 23.2	<.001
Psychologist	29.8	19.1	χ ² ₁ = 6.6	.01
Social worker	6.3	8.1	χ ² ₁ = 0.6	.43
Other	16.9	14.8	χ ² ₁ = 0.5	.48

*Data are from 1987 National Medical Expenditure Survey and 1997 Medical Expenditure Panel Survey. Percentages are weighted estimates. Mean third-party payment of visits denotes the average of individual mean third-party payment of visits. Mean third-party payment denotes the average of individual mean third-party payment for psychotherapy visits. Individuals may have used more than 1 class of antidepressant. SSRIs indicates selective serotonin reuptake inhibitors.

Table 4. Adjusted Year Effect of Psychotherapy, Psychopharmacotherapy, Combined Treatment, Antidepressant Treatment, and Number of Psychotherapy Visits for Treatment of Depression*

Variable	Year Effect (95% CI)	P Value
Psychotherapy, any	OR = 0.5 (0.3-0.8)	.001
No. of psychotherapy visits	β = -5.2 (-9.4 to -1.0)	.02
Pharmacotherapy, any	OR = 4.5 (3.0-6.9)	<.001
Antidepressants, any	OR = 4.8 (3.1-7.3)	<.001
Psychotherapy and pharmacotherapy	OR = 2.0 (1.3-2.9)	<.001
Psychotherapy and antidepressants	OR = 2.4 (1.6-3.6)	<.001

*Data are from 1987 National Medical Expenditure Survey and 1997 Medical Expenditure Panel Survey. Year effect estimates the odds ratio (OR) of service in 1997 relative to 1987 controlling for age, sex, race, marital status, education, employment status, and insurance status. CI indicates confidence interval.

ing of pharmacologic treatment of depression. According to a 1986 Roper poll,³⁴ only 12% of respondents indicated that they would be willing to take medication for depression, whereas 78% stated they would live with the depression until it passed. An ABC News poll³⁵ conducted in April 2000 found that 28% of adults would be willing to take antidepressants for depression for an extended period even though they were informed that safety studies had not been conducted on long-term use of these medications. This suggests that the pharmacologic treatment of depression is becoming less stigmatized.

The growth in managed mental health care and the concepts of disease management³⁶ and medical necessity³⁷ may have further spurred the pharmacologic treatment of depression. In many plans, comprehensive pharmacy benefits encourage medication management visits over psychotherapy visits, which are not reimbursed as generously. Managed care generally seeks to shift patient care from specialty to primary care physicians who are able and may be more likely to use pharmacologic treatments rather than psychotherapy to manage depression. In addition, mental disorders that require ongoing treatment are increasingly managed in behavioral health care “carve outs” that seek to reduce costs by lowering the number of visits per depressed individual.^{38,39}

The comparatively low rate of treatment among black and Hispanic individuals, those with less education, and those without health insurance suggests that an unmet need for treatment may be especially great within these groups. Epidemiologic data indicate that the rate of major depression is inversely related to income and educational achievement and that depression is more common among Hispanics than whites or blacks.^{1,40} These findings suggest, but cannot confirm, that individuals within these minority groups are vulnerable to undertreatment.

According to the NCS (1990-1992), 3.1% of adults 15 to 54 years of age received outpatient health care treat-

ment in 1 year for a mood disorder.¹⁵ The earlier ECA (1980-1982) survey reported that 3.6% of adults have an affective disorder and receive mental health treatment in the health system during 1 year.¹ These NCS and ECA findings exceed the corresponding findings from the NMES (1987) (0.7%). This disparity may be related to important methodologic differences between the studies. For example, although the ECA figures include treatment for any mental health or addictive symptoms by adults who meet criteria for an affective disorder, the NMES figures include only outpatient treatment reported for depression. Methodologic differences between the studies stem from underlying differences in their primary aims: to quantify psychopathology in the community (ECA and NCS) and to measure service use over time (NMES and MEPS).

One consequence of increased pharmacologic treatment of depression is that larger numbers of depressed individuals are being treated with both pharmacotherapy and psychotherapy. Recent research suggests that the combination of an antidepressant and cognitive behavioral psychotherapy is more efficacious than either treatment alone for chronic forms of major depression.⁴¹ In milder depressions, psychotherapy alone may be nearly as effective as the combination of antidepressants and psychotherapy.⁴² The extent to which combined treatments confer meaningful advantages over single-modality treatments in clinical practice awaits detailed longitudinal practice-based outcomes research.

The current study is constrained by several limitations. Both the NMES and MEPS collect data from household informants who may not be fully aware of all of the services used by household members. Stigma, recall problems, and problems distinguishing the different provider groups pose threats to the reporting and classification of the survey data. Some respondents, especially those with less education, may not be able to identify “psychotherapy/mental health counseling” when they receive it. With-

out an independent measure of symptoms, it is not possible to determine whether patients who received treatment actually met diagnostic criteria for the selected conditions. Finally, the 1997 survey did not break out providers by physician specialty, thereby limiting our ability to determine whether the observed changes in treatment patterns occurred primarily in the general medical or specialty mental health sector.

In recent years, a growing number of Americans have received treatment for depression. During this period, antidepressant medications have gained popularity and physicians have extended their involvement in care. For the promise of increased access to treatment to be fully realized, available treatments must be provided in a safe, timely, and effective manner. An important challenge ahead is to characterize the community treatment of depression with greater specificity and relate variations in these treatments to critical patient outcomes.

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REFERENCES

1. Regier DA, Narrow WE, Rae DS, Manderscheid RW, Locke BZ, Goodwin FK. The de facto US mental and addictive disorders service system: Epidemiologic Catchment Area prospective 1-year prevalence rates of disorders and services. *Arch Gen Psychiatry.* 1993;50:85-94.
2. 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.
3. Weissman MM, Bland RC, Canino GJ, et al. Cross-national epidemiology of major depression and bipolar disorder. *JAMA.* 1996;276:293-299.
4. Wells KB, Sherbourne CD. Functioning and utility for current health of patients with depression or chronic medical conditions in managed, primary care practices. *Arch Gen Psychiatry.* 1999;56:897-904.

5. Hirschfeld RM, Montgomery SA, Keller MB, et al. Social functioning in depression: a review. *J Clin Psychiatry*. 2000;61:268-275.
6. Spitzer RL, Kroenke K, Linzer M, et al. Health-related quality of life in primary care patients with mental disorders: results from the PRIME-MD 1000 Study. *JAMA*. 1995;274:1511-1517.
7. Wells KB, Stewart A, Hays RD, et al. The functioning and well-being of depressed patients: results from the Medical Outcomes Study. *JAMA*. 1989;262:914-919.
8. Murray CJ, Lopez AD. Evidence-based health policy-lessons from the Global Burden of Disease Study. *Science*. 1996;274:740-743.
9. Nelson JC. A review of the efficacy of serotonergic and noradrenergic reuptake inhibitors for treatment of major depression. *Biol Psychiatry*. 1999;46:1301-1308.
10. Schatzberg AF. Noradrenergic versus serotonergic antidepressants: predictors of treatment response. *J Clin Psychiatry*. 1998;59(suppl 14):15-18.
11. Markowitz JC. Developments in interpersonal psychotherapy. *Can J Psychiatry*. 1999;44:556-561.
12. American Psychiatric Association. Practice guideline for the treatment of patients with major depressive disorder (revision). *Am J Psychiatry*. 2000;157(suppl):1-45.
13. Depression Guideline Panel. *Depression in Primary Care, Volume 2: Treatment of Major Depression*. Rockville, Md: Public Health Service, US Dept of Health and Human Services; 1993. AHCPR publication 93-0551.
14. Persons JB, Thase ME, Crits-Christoph P. The role of psychotherapy in the treatment of depression: review of two practice guidelines. *Arch Gen Psychiatry*. 1996;53:283-290.
15. Kessler RC, Zhao S, Katz SJ, et al. Past-year use of outpatient services for psychiatric problems in the National Comorbidity Survey. *Am J Psychiatry*. 1999;156:115-123.
16. Narrow WE, Regier DA, Rae DS, Manderscheid RW, Locke BZ. Use of services by persons with mental and addictive disorders: findings from the National Institute of Mental Health Epidemiologic Catchment Area program. *Arch Gen Psychiatry*. 1993;50:95-107.
17. Mental Health: A Report of the Surgeon General. 2000. Available at: <http://www.surgeongeneral.gov/library/mentalhealth/home.html>. Accessed July 25, 2001.
18. Edwards WS, Berlin M. *National Medical Expenditure Survey: Questionnaires and Data Collection Methods for the Household Survey and Survey of American Indians and Alaska Natives*. Washington, DC: US Dept of Health and Human Services; 1989. Publication (PHS) 89-3450.
19. Cohen SB. *Sample Design of the 1997 Medical Expenditure Panel Survey Household Component*. Rockville, Md: Agency for Healthcare Research and Quality; 2000. MEPS Methodology Report 11. AHRQ publication 01-0001.
20. Cohen S, DiGaetano R, Waksberg J. *Sample Design of the 1987 Household Survey, National Medical Expenditure Survey Methods 3*. Rockville, Md: Agency for Healthcare Research and Quality; 1991. AHCPR publication 91-0037.
21. *International Classification of Diseases, Ninth Revision, Clinical Modification*. Washington, DC: Public Health Service, US Dept of Health and Human Services; 1988.
22. *Physicians' Desk Reference*. Montvale, NJ: Medical Economics Co Inc; 1997.
23. Shah BV, Barnwell BG, Dieler GS. *SUDAAN User's Manual, Release 7.5*. Research Triangle Park, NC: Research Triangle Institute; 1997.
24. Peretti S, Judge R, Hindmarch I. Safety and tolerability considerations: tricyclic antidepressants vs selective serotonin reuptake inhibitors. *Acta Psychiatr Scand*. 2000;403(suppl):17-25.
25. Trindade E, Menon D, Topfer LA, Coloma C. Adverse effects associated with selective serotonin reuptake inhibitors and tricyclic antidepressants: a meta-analysis. *CMAJ*. 1998;159:1245-1252.
26. Olfson M, Marcus SC, Pincus HA, Zito JM, Thompson JW, Zarin DA. Antidepressant prescribing practices of outpatient psychiatrists. *Arch Gen Psychiatry*. 1998;55:310-316.
27. Nikelly AG. Drug advertisements and the medicalization of unipolar depression in women. *Health Care Women Int*. 1995;16:229-242.
28. Goldman R, Montagne M. Marketing "mind mechanics": decoding antidepressant advertisements. *Soc Sci Med*. 1986;22:1047-1058.
29. Spitzer RL, Williams JB, Kroenke K, et al. Utility of a new procedure for diagnosing mental disorders in primary care: the PRIME-MD 1000 study. *JAMA*. 1994;272:1749-1756.
30. Leon AC, Olfson M, Weissman MM, et al. Brief screens for mental disorders in primary care. *J Gen Intern Med*. 1996;11:426-430.
31. Zimmerman M, Lish JD, Farber NJ, et al. Screening for depression in medical patients. Is the focus too narrow? *Gen Hosp Psychiatry*. 1994;16:388-396.
32. Regier DA, Hirschfeld RM, Goodwin FK, Burke JF, Lazar JB, Judd LL. The NIMH Depression Awareness, Recognition, and Treatment Program: structure, aims, and scientific basis. *Am J Psychiatry*. 1988;145:1351-1357.
33. Greenfield SF, Reizes JM, Muenz LR, Kopans B, Kozloff RC, Jacobs DG. Treatment for depression following the 1996 National Depression Screening Day. *Am J Psychiatry*. 2000;157:1867-1869.
34. *Roper Reports: To Medicate: What People Do for Minor Health Problems*. New York, NY: Roper Organization; October 1986. Roper Reports 86-88.
35. Langer F. Use of anti-depressants is a long-term practice. April 10, 2000. Available at: <http://abcnews.com>. Accessed December 17, 2000.
36. Kihlstrom LC. Managed care and medication compliance: implications for chronic depression. *J Behav Health Serv Res*. 1998;25:367-376.
37. Dana RH, Conner MG, Allen J. Quality of care and cost-containment in managed mental health: policy, education, research, advocacy. *Psychol Rep*. 1996;79:1395-1422.
38. Frank RG, Huskamp HA, McGuire TG, Newhouse JP. Some economics of mental health "carve-outs." *Arch Gen Psychiatry*. 1996;53:933-937.
39. Sturm R. Tracking changes in behavioral health services: how have carve-outs changed care? *J Behav Health Serv Res*. 1999;26:360-371.
40. 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.
41. Keller MB, McCullough JP, Klein DN, et al. A comparison of nefazadone, the cognitive-behavioral analysis system of psychotherapy, and their combination for the treatment of chronic depression. *N Engl J Med*. 2000;342:1462-1470.
42. Thase ME, Greenhouse JB, Frank E, et al. Treatment of major depression with psychotherapy or psychotherapy-pharmacotherapy combinations. *Arch Gen Psychiatry*. 1997;54:1009-1015.