

Outpatient Treatment of Child and Adolescent Depression in the United States

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Background: Although psychotherapy has traditionally been the dominant form of treatment for children and adolescents with depression, there has been a recent increase in the prescription of antidepressants for this age group.

Objective: To describe patterns of outpatient treatment for children and adolescents with depression.

Design and Setting: Analysis of health service–use data from 4 consecutive years (1996–1999) of the Medical Expenditure Panel Survey, a nationally representative annual survey of the general population that is sponsored by the Agency for Healthcare Quality and Research, Rockville, Md.

Subjects: Patients aged 6 to 18 years who made 1 or more outpatient visits for the treatment of depression.

Main Outcome Measures: Rate of treatment, mental health problems, psychotropic medication use, psychotherapy use, number of outpatient treatment visits, and type of provider.

Results: Across the 4 survey years, the mean annual rate

of outpatient treatment for depression was 0.93 per 100 individuals. The rate of treatment was especially low for African American individuals (0.23 per 100) and uninsured individuals (0.43 per 100). Approximately three quarters (79%) of treated children and adolescents received psychotherapy and more than half (56.9%) were prescribed antidepressant medications. The mean number of treatment visits for depression was 7.8 per year. As compared with children and adolescents with depression who were treated without antidepressants, those who received antidepressants were significantly more likely to have evidence of anhedonia, to live in large urban communities, to have parents who graduated from high school, and to have health insurance.

Conclusions: The rate and pattern of treatment suggest that serious gaps exist in access to community outpatient treatment for children and adolescents with depression. At the same time, antidepressant medications are used far more commonly than would be expected on the basis of published treatment recommendations.

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DEPRESSION IN childhood and adolescence is prevalent, frequently recurrent, and highly impairing. Depressive disorders occur in approximately 2% of primary school–aged children and 4% to 8% of adolescents.^{1–5} Nearly half (45%) of adolescents with major depression relapse in young adulthood.⁶ Children and adolescents with depression are also at increased risk for suicide,⁷ substance use disorders,⁸ early pregnancy, poor academic performance, and impaired psychosocial functioning.⁹

Psychotherapy traditionally has been the predominant treatment for children and adolescents with depression.¹⁰ According to the American Academy of Child and Adolescent Psychiatry practice parameters, psychotherapy should be the first

treatment for most children and adolescents with depression,¹¹ although empirical support for this recommended order of treatments is lacking. Controlled clinical trials demonstrate that cognitive-behavioral psychotherapy¹² and interpersonal psychotherapy¹³ significantly reduce the symptoms of mild to moderate depression during childhood and adolescence. These clinical trials typically involve 15 to 25 psychotherapy sessions administered during a 6- to 16-week period.

The American Academy of Child and Adolescent Psychiatry practice parameters recommend that antidepressants should be considered for children and adolescents with severe, psychotherapy-resistant, psychotic, or bipolar depression.¹¹ Clinical trials demonstrate that selective serotonin reuptake inhibitors (SSRIs) are efficacious in treating chil-

dren and adolescents with depression.¹⁴⁻¹⁶ For example, in 1 large 8-week, double-blind, randomized controlled trial, a significantly larger proportion of patients with major depressive disorder met remission criteria when treated with fluoxetine hydrochloride (41%) vs a placebo (20%).¹⁶

Little information exists concerning the community treatment of children and adolescents with depression. Small clinical and research samples evaluated before the availability of SSRIs indicate that antidepressants were seldom used to treat children and adolescents with depression.¹⁷⁻¹⁹ This is not surprising given the generally disappointing results from controlled trials of tricyclic antidepressants.²⁰ With the availability of the SSRI antidepressants, the overall rate of antidepressant prescriptions for children and adolescents has increased.²¹⁻²⁴ However, estimates of the rate of antidepressant use in community samples,²¹ insured groups,²²⁻²⁴ and outpatient medical samples²⁵ of children and adolescents offer little insight into the pattern of treatments provided for children and adolescents with depression in the community. For example, it is not known what proportion of children and adolescents treated for depression receive SSRIs or other antidepressants for their symptoms. A description of treatment for children and adolescents with depression also permits evaluation of possible determinants of specific treatments and relationships between evidence-based practice and community care.

In this article, we examined patterns of community care for subjects aged 6 to 18 years who received outpatient treatment for depression. We estimated how commonly outpatient treatment involved psychotherapy, antidepressants, and other psychotropic medications. We also examined whether markers of socioeconomic advantage, including family income, parental education, and private insurance, increased the likelihood of antidepressant treatment in outpatient care. In addition, we assessed whether, as recommended by the American Academy of Child and Adolescent Psychiatry practice parameters, antidepressants were reserved for children and adolescents with severe depression.

METHODS

SOURCES OF DATA

Data were drawn from the household component of the 1996 to 1999 Medical Expenditure Panel Surveys (MEPSs).^{26,27} The Agency for Healthcare Research and Quality, Rockville, Md, sponsors the MEPS to provide national estimates of the use, expenditures, and financing of health services. The MEPS is conducted annually as a national probability sample of the US civilian, noninstitutionalized population and is designed to provide nationally representative estimates of health service use. Because the yearly surveys used similar methods, they can be combined to increase sample size and permit annualized estimates of specific types of treatment.

STUDY SAMPLES

The 1996 to 1999 MEPS household component was drawn from a nationally representative subsample of the 1995 National Health Interview Survey.²⁷ Data were collected for 21 571 (1996), 32 636 (1997), 22 953 (1998), and 23 565 (1999) participants

from 8655 (1996), 13 087 (1997), 9023 (1998), and 9345 (1999) households. This represents response rates of 70.2% (1996), 66.4% (1997), 67.9% (1998), and 64.3% (1999). In each survey, a designated informant was queried about all related persons who lived in the household. The current analysis is limited to the 21 824 participants who were aged 6 to 18 years at the start of their respective survey year.

The Agency for Healthcare Research and Quality devised weights to adjust for the complex survey design and to yield unbiased national estimates. The sampling weights also adjust for nonresponse and poststratification to population totals based on US census data. A special sampling file was obtained from the Agency for Healthcare Research and Quality to permit analysis of the 4 years of survey data. More complete discussions of the design, sampling, and adjustment methods are presented in the MEPS methodology reports.^{26,27}

STRUCTURE OF SURVEY

The 1996 to 1999 MEPSs include a series of 3 in-person interviews to cover each survey year.²⁶ Respondents were asked to record medical events as they occurred in a structured diary that was reviewed in person during each interview. Outpatient medical events included services delivered by a wide range of providers working in private offices, school clinics, infirmaries, neighborhood clinics, mental health facilities, emergency departments, and outpatient clinics. Written permission was obtained from select survey participants to contact health care providers they mentioned during the survey 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 one half of office-based visits.

SOCIODEMOGRAPHIC CHARACTERISTICS

Information was collected on the age, sex, race and ethnicity, county of residence, total family income, and health insurance of survey participants. Respondents were grouped on the basis of total family income in relation to the US Census Bureau poverty line as either poor, near poor, or low income (<200% of poverty line) or middle or high income (\geq 200% of poverty line).

MENTAL HEALTH PROBLEMS

A health assessment was provided once during the survey year. It probed perceived health and mental health status on a 5-point Likert scale (excellent, very good, good, fair, poor).²⁸ Questions were also asked to assess specific mental health problems, including behavioral problems (problems staying out of trouble, problems with behavior at home or school); problems with family (problems getting along with mother, father, or siblings); social problems (problems with age-appropriate tasks, getting along with other children or adults); depressed mood (feeling unhappy or sad); and anhedonia (problems having fun or engaging in sports or hobbies). Items were determined to be present if they were reported to pose even a minor problem for the child or adolescent.

TREATMENT OF DEPRESSION

Respondents were asked the primary reason for every outpatient visit. Entries were coded according to the *International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM)*.²⁹ Interviewers each underwent 80 hours of training, and coders all had degrees in nursing or medical-record administration. Five percent of the medical records were rechecked for

Table 1. Stratified Rates of Treatment for Depression Among Subjects Aged 6 to 18 Years*

| | Sample Size | Rate per 100 Subjects | 95% CI |
|-----------------------------------|-------------|-----------------------|-----------|
| Total | 219/21 824 | 0.93 | 0.75-1.11 |
| Age, y | | | |
| 6-11 | 51/10 625 | 0.48 | 0.28-0.68 |
| 12-14 | 56/4959 | 0.90 | 0.61-1.19 |
| 15-18 | 112/6240 | 1.63 | 1.22-2.04 |
| Sex | | | |
| Boys | 104/11 062 | 0.79 | 0.59-0.99 |
| Girls | 115/10 762 | 1.06 | 0.79-1.33 |
| Race/ethnicity | | | |
| Hispanic | 60/6649 | 1.02 | 0.65-1.39 |
| African American, non-Hispanic | 10/3637 | 0.26 | 0.04-0.48 |
| White, non-Hispanic† | 149/11 538 | 1.06 | 0.82-1.30 |
| Population of county of residence | | | |
| ≥1 Million | 93/10 739 | 0.88 | 0.64-1.12 |
| <1 Million | 126/11 085 | 0.97 | 0.72-1.22 |
| Family income‡ | | | |
| Poor, near poor, or low | 108/10 572 | 1.05 | 0.76-1.34 |
| Medium or high | 111/11 252 | 0.85 | 0.65-1.05 |
| Parents' education§ | | | |
| Did not graduate high school | 39/4620 | 0.91 | 0.52-1.30 |
| Graduated high school | 165/16 122 | 0.90 | 0.70-1.10 |
| Health insurance | | | |
| Private, any | 137/13 367 | 0.91 | 0.71-1.11 |
| Public, any | 86/6358 | 1.40 | 0.93-1.87 |
| None | 18/3122 | 0.43 | 0.21-0.65 |

Abbreviation: CI, confidence interval.

*All values are annualized weighted estimates based on data from the 1996 to 1999 Medical Expenditure Panel Surveys. Confidence intervals were calculated with SUDAAN software to account for the complex survey design. Treatment was defined as any visit for a depressive disorder (*International Classification of Diseases, Ninth Revision* codes 296.2, 296.3, 300.4, or 311).

†White includes white, American Indian, Alaskan Native, and Asian or Pacific Islander.

‡Defined on the basis of total annual family income as poor, near poor, or low if less than 200% of the poverty line and medium or high if greater than or equal to 200% of the poverty line.

§Highest attainment of parent(s) living in the home.

||Insurance groups are not mutually exclusive.

errors; error rates in the rechecked records were less than 2.5%. A staff psychiatric nurse established mental disorder diagnoses in cases of diagnostic ambiguity or uncertainty. Children or adolescents who made 1 or more outpatient visits for the purpose of major depressive disorder, single episode (*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 (*ICD-9* code 311) were defined as having received treatment for depression.

PROVIDERS

The MEPS booklets solicited information on the type of health care professionals who provided treatment at each visit. We classified health care professionals into the following groups: physicians of all specialties, social workers, psychologists, and a residual group of other providers that included nurses, nurse practitioners, physician assistants, chiropractors, and other health care providers. Information was not available on the subspecialty of physicians.

PSYCHOTHERAPY

Using a flash card with various response categories, the surveys asked respondents what type of care was provided during each outpatient visit, including psychotherapy or mental health counseling. The subset of visits for the treatment of depression that included psychotherapy or mental health counseling was considered psychotherapy.

MEDICATIONS

The surveys asked for all prescribed medicines associated with each health care visit. We focused on prescribed psychotropic medications associated with outpatient visits for the treatment of depression. Psychotropic medications were classified as antidepressants, anxiolytics, antipsychotics, mood stabilizers, or stimulants according to the *Physicians' Desk Reference* 2000.³⁰ A subcategory of antidepressants was created for SSRIs that included fluoxetine, sertraline hydrochloride, paroxetine hydrochloride, fluvoxamine, and citalopram hydrobromide.

ANALYSIS PLAN

Annualized rates of treatment for depression per 100 persons were computed stratified by sociodemographic characteristics. Confidence intervals (95%) were used to examine the strength of association between rates of treatment of depression and sociodemographic categories. The sociodemographic and clinical characteristics of children and adolescents treated for depression with antidepressants were compared with children and adolescents treated for depression without antidepressants. Wald F tests were used to identify differences in means of continuous variables between sociodemographic and clinical categories. All statistical analyses were performed using version 7.5 of the SUDAAN software package³¹ to accommodate the complex sample design and the weighting of observations.

RESULTS

RATES OF TREATMENT

During the course of 1 year, approximately 1 in every 100 children and adolescents (0.93%) received outpatient treatment for depression. The rate of treatment for adolescents aged 15 to 18 years was significantly greater than the rate for younger children. African American, non-Hispanic children and adolescents were significantly less likely to receive outpatient treatment for depression than either Hispanic or white, non-Hispanic children and adolescents. Uninsured children and adolescents were also significantly less likely to receive treatment for depression than those who had either private or public health insurance. Family income and parental education were not significantly related to the rate of treatment of children or adolescents with depression (**Table 1**). The sample size prevents evaluation of potentially important interactions of race and ethnicity, education, and income on treatment rates.

PSYCHOTHERAPY

Roughly three quarters (79%) of children and adolescents treated for depression had undergone 1 or more psychotherapy visits. Among those who underwent psychotherapy, the mean number of psychotherapy visits dur-

ing the survey year was 7.7 (**Table 2**). When all treatment visits were considered, approximately one third (33.5%) of the patients underwent only 1 or 2 treatment visits during the course of the survey year.

PHARMACOTHERAPY

Most adolescents and children treated for depression were treated with psychotropic medications (Table 2). Slightly more than half of the treated patients (56.9%) filled prescriptions for antidepressant medications. These medications were significantly more commonly used than all other classes of psychotropic medications combined (Table 2). Most of the patients who were treated with antidepressants received SSRIs.

Children and adolescents treated with antidepressants were significantly more likely than their counterparts treated without antidepressants to reside in a county with more than 1 million residents, to have parents who graduated from high school, and to have health insurance. Children and adolescents treated with antidepressants also tended to be less likely than those treated without antidepressants to come from lower-income families, though this tendency was not statistically significant ($P = .054$) (**Table 3**).

The overwhelming majority of children and adolescents treated for depression had some evidence of depressed mood and problems with their parents, their siblings, and other children, as well as behavioral problems. Children and adolescents treated with antidepressants were significantly more likely than those not treated with antidepressants to experience problems having fun or engaging in sports or hobbies (ie, anhedonia) (**Table 4**).

COMBINED TREATMENT

Nearly half of children and adolescents (47.1%) treated for depression received combined treatment, which is defined as use of a psychotropic medication for depression and at least 1 psychotherapy visit for depression during the survey year (Table 2). In almost all of the patients, the pharmacotherapy included an antidepressant. By contrast, 12.7% of patients received pharmacotherapy for depression without receiving psychotherapy, and 31.9% received psychotherapy alone. The remaining 8.3% received treatment that involved neither.

PROVIDER TYPE

Approximately three quarters (76.7%) of children and adolescents treated for depression received treatment from a physician. This greatly exceeded the proportion treated by social workers, psychologists, or other health care professionals. Patients of social workers tended to undergo more treatment visits than patients of physicians, but this tendency was not statistically significant.

During the course of 1 year, approximately 3 in 10 (29.3%) children or adolescents treated for depression received treatment from more than 1 provider group (physicians, social workers, psychologists, or other health care professionals) (Table 2). As compared with those treated by 1 provider group, children and adolescents treated by

Table 2. Characteristics of Treatment for Depression Among Subjects Aged 6 to 18 Years*

| | Sample Size, No. | Percentage | 95% CI |
|-----------------------------------|------------------|------------|-----------|
| Treatment visits† | 219 | | |
| 1-2 | 81 | 33.5 | 25.9-41.0 |
| 3-9 | 80 | 39.6 | 31.8-47.3 |
| ≥10 | 58 | 27.0 | 18.7-35.2 |
| No. of treatment visits, mean | 219 | 7.8 | 6.1-9.6 |
| Psychotherapy | 168 | 79.0 | 73.3-84.6 |
| No. of visits, mean | 168 | 7.7 | 6.2-9.2 |
| Pharmacotherapy | | | |
| Any psychotropics | 128 | 59.8 | 52.3-67.4 |
| No. of prescriptions, mean | 128 | 6.2 | 4.6-7.8 |
| Any antidepressants | 118 | 56.9 | 49.5-64.3 |
| SSRIs | 89 | 43.3 | 35.5-51.2 |
| Any non-antidepressants | 35 | 13.8 | 7.5-20.1 |
| Anxiolytics | 6 | 2.6 | 0.1-5.0 |
| Antipsychotics | 5 | 2.1 | 0.0-4.3 |
| Mood stabilizers | 16 | 6.3 | 2.0-10.6 |
| Stimulants | 13 | 4.8 | 1.1-8.6 |
| Multiple medication classes‡ | 28 | 12.0 | 6.1-17.9 |
| Combination treatment | | | |
| Psychotherapy and pharmacotherapy | 101 | 47.1 | 39.0-55.3 |
| Psychotherapy and antidepressants | 91 | 44.2 | 36.6-51.9 |
| Provider types | | | |
| Any visits to a physician | 166 | 76.7 | 69.2-84.1 |
| No. of visits, mean | 166 | 5.4 | 4.0-6.7 |
| Any visits to a psychologist | 72 | 33.8 | 26.2-41.4 |
| No. of visits, mean | 72 | 6.4 | 4.7-8.1 |
| Any visits to a social worker | 17 | 6.3 | 2.9-9.7 |
| No. of visits, mean | 17 | 10.9 | 4.0-17.8 |
| Any visits to other provider type | 40 | 18.2 | 12.5-23.9 |
| No. of visits, mean | 40 | 4.9 | 2.6-7.1 |
| Multiple provider types§ | 62 | 29.3 | 21.3-37.3 |
| No. of visits, mean | 62 | 15.4 | 9.2-21.5 |

Abbreviations: CI, confidence interval; SSRI, selective serotonin reuptake inhibitor.

*Analysis limited to patients who received treatment for a depressive disorder. All values are annualized weighted estimates based on data from the 1996 to 1999 Medical Expenditure Panel Surveys. Confidence intervals were calculated with SUDAAN software to account for the complex survey design. Confidence interval limits were bottom coded at 0.0.

†Treatment visits include all visits for treatment of a depressive disorder. Treatment may include psychotherapy, pharmacotherapy, both, or neither.

‡At least 2 of the following: antidepressant, anxiolytic, antipsychotic, mood stabilizer, stimulant, and other.

§At least 2 of the following: physician, psychologist, social worker, and other.

||Includes all visits to all provider types.

multiple providers underwent a significantly larger number of visits for the treatment of depression (mean \pm SD, 15.4 ± 3.2 vs 4.7 ± 0.5 , respectively; $F_{1,615} = 10.1$; $P = .002$). They were also more likely to use antidepressant medications (71.6% vs 50.9%, respectively; $\chi^2 = 4.4$; $P = .04$).

COMMENT

Each year approximately 1% of children and adolescents in the United States receive outpatient treatment for depression. This rate of treatment falls substantially below epidemiological estimates of the prevalence of major depression during childhood (2%-8%). The current

Table 3. Sociodemographic Characteristics of Subjects Aged 6 to 18 Years Treated for Depression With or Without Antidepressant Medications*†

| Sociodemographic Characteristic | Subjects Treated With Antidepressants (n = 118)‡ | Subjects Treated Without Antidepressants (n = 101) | Test | P Value |
|-----------------------------------|--|--|------------------------------------|---------|
| Age, y, mean ± SE | 14.3 ± 0.4 | 13.9 ± 0.4 | F _{1,615} = 0.5 | .46 |
| Age, y | | | | |
| 6-11 | 22.4 | 26.5 | χ ₂ ² = 0.8 | .66 |
| 12-14 | 19.8 | 24.0 | | |
| 15-18 | 57.8 | 49.5 | | |
| Sex | | | | |
| Boys | 40.2 | 48.1 | χ ₁ ² = 0.8 | .36 |
| Girls | 59.8 | 51.9 | | |
| Race/ethnicity | | | | |
| Hispanic | 13.3 | 18.9 | χ ₂ ² = 1.5 | .48 |
| African American, non-Hispanic | 4.2 | 5.0 | | |
| White, non-Hispanic§ | 82.5 | 76.2 | | |
| Population of county of residence | | | | |
| ≥1 Million | 57.3 | 31.6 | χ ₁ ² = 10.5 | .001 |
| <1 Million | 42.7 | 68.4 | | |
| Family income | | | | |
| Poor, near poor, or low | 37.0 | 51.8 | χ ₁ ² = 3.7 | .05 |
| Medium or high | 63.1 | 48.2 | | |
| Parents' education | | | | |
| Did not graduate high school | 8.1 | 23.0 | χ ₁ ² = 5.9 | .02 |
| Graduated high school | 91.9 | 77.0 | | |
| Health insurance¶ | | | | |
| Private, any | 73.0 | 65.1 | χ ₁ ² = 1.7 | .19 |
| Public, any | 34.4 | 32.7 | χ ₁ ² = 0.1 | .79 |
| None | 1.3 | 10.4 | χ ₁ ² = 9.2 | .003 |

*Analysis limited to patients who received treatment for a depressive disorder. All values are annualized weighted estimates based on data from the 1996 to 1999 Medical Expenditure Panel Surveys. Standard errors were calculated with SUDAAN software to account for the complex survey design. Values may not add to 100% because of rounding. The 2 comparison groups include cases without respect to psychotherapy use.

†Values are expressed as percentages unless otherwise indicated.

‡Per annum, approximately 274 000 individuals (weighted population) aged 6 to 18 years received an antidepressant as part of treatment.

§White includes white, American Indian, Alaskan Native, and Asian or Pacific Islander.

||Highest attainment of parent(s) living in the home.

¶Insurance groups are not mutually exclusive; the reference level for each category is not shown.

findings reinforce earlier studies documenting that children and adolescents with depressive disorders often do not receive treatment for their symptoms^{19,32} and underscore the need to improve access to care for the treatment of children and adolescents with depression.

The rate of treatment for depression was especially low among younger children, African American children and adolescents, and those without health insurance. Although this pattern suggests that undertreatment is particularly common among socioeconomically disadvantaged groups, diagnostic assessments that are independent of health service use are required to confirm this inference. The direct relationship between rate of treatment and age may be related to an underlying age-related increase in the prevalence of depression during childhood and adolescence.³⁻⁵ Racial differences in treatment rates may be partially attributable to a lower base rate of depressive disorders in African American children and adolescents than in white children and adolescents,³³ though this issue clearly warrants further study. Financial barriers and cultural factors may also play a role. In adult populations, there is evidence that even after controlling for socioeconomic status, African American individuals are less likely than white individuals to receive needed mental health care.³⁴

Psychotherapy was the most common treatment for children and adolescents with depression. Approximately 3 in 4 school-aged children and adolescents in the United States who receive care for depression are treated with psychotherapy. However, the average child or adolescent treated with psychotherapy undergoes fewer than 8 psychotherapy visits during a year, and many undergo only 1 or 2 treatment visits. This is far below the number of visits typically administered in controlled trials of manual-guided psychotherapy.¹² Unfortunately, the surveys do not provide sufficient detail to evaluate the quality, much less the effectiveness, of the treatments provided to the study sample. Nonetheless, some evidence suggests that even after adjusting for treatment episode length, children and adolescents with depression receiving psychotherapy in community settings tend to have less favorable outcomes than those treated within controlled trials with cognitive-behavioral therapy.³⁵

Antidepressant medications are prescribed to roughly one half of all school-aged children and adolescents treated for depression in the United States. Such common antidepressant use stands in sharp contrast to the infrequent use documented in clinical studies conducted during the pre-SSRI era.¹⁸ In one early study, 3.1% of children and adolescents seeking treatment for depression re-

Table 4. Clinical Characteristics of Subjects Aged 6 to 18 Years Treated for Depression With or Without Antidepressant Medications*

| Clinical Characteristics | Subjects Treated With Antidepressants (n = 118) | Subjects Treated Without Antidepressants (n = 101) | χ^2 Test | P Value |
|------------------------------|---|--|---------------|---------|
| Depressed mood | 97.0 | 94.1 | 1.3 | .26 |
| Anhedonia | 83.7 | 68.3 | 4.9 | .03 |
| Problems with parents | 88.7 | 85.7 | 0.3 | .57 |
| Problems with siblings | 82.0 | 77.5 | 0.4 | .51 |
| Problems with other children | 65.2 | 66.3 | 0.0 | .90 |
| Problems with adults | 54.1 | 50.6 | 0.2 | .68 |
| Behavioral problems | 85.9 | 88.3 | 0.1 | .71 |
| Feeling nervous/afraid | 80.3 | 80.8 | 0.0 | .92 |
| Poor/fair mental health | 18.7 | 11.6 | 2.3 | .13 |

*Analysis limited to patients who received treatment for a depressive disorder. All values are annualized weighted estimates based on data from the 1996 to 1999 Medical Expenditure Panel Surveys. See the "Mental Health Problems" subsection of the "Methods" section in the text for a description of the clinical characteristics. The 2 comparison groups include cases without respect to psychotherapy use.

ceived antidepressant medications during the course of a 5-year follow-up period.¹⁷ In another early study, 4.2% of a large sample of adolescents with major depression reported ever having received an antidepressant.¹⁹

When the survey data were collected, the Food and Drug Administration had not approved any of the newer antidepressant medications for the treatment of depression in children. Evidence from open trials^{36,37} and a randomized controlled trial¹⁴ appeared in 1997, supporting the efficacy of SSRIs for the treatment of depression in children and adolescents. Physicians who prescribed SSRIs for children and adolescents with depression were willing to extrapolate from the extensive clinical and research experience with adults, the relatively small research base with children and adolescents, or local clinical experience with children and adolescents. In January 2003, the Food and Drug Administration approved fluoxetine for the treatment of children and adolescents aged 7 to 17 years with major depressive disorder. In July 2003, the Food and Drug Administration recommended that paroxetine not be used for the treatment of major depressive disorder in children and adolescents younger than 18 years. This recommendation was based on reports of an increased risk of suicidal thinking and suicide attempts related to paroxetine use in this age group. The extent to which these regulatory developments will influence the community treatment of depression in children and adolescents remains unknown.

The current findings provide some insight into determinants of antidepressant use in the treatment of children and adolescents with depression. Although the American Academy of Child and Adolescent Psychiatry practice parameters recommend that antidepressants should be limited to children and adolescents with the most severe or psychotherapy-resistant disorders,¹¹ we found little evidence that antidepressant treatment is linked to clinical severity. Anhedonia was the only index of clinical need that distinguished the group treated with antidepressants from those treated without antidepressants.

Among treated children and adolescents, antidepressant use is related to urban residence, parental education, and health insurance. Residence in a large metropolitan area may increase geographic access to child

psychiatrists and other medical specialists who have greater experience prescribing antidepressant medications to children and adolescents.³⁸ Highly educated parents may be more aggressive and informed than less educated parents in seeking pharmacological treatment for their children, so their children may be more likely to receive antidepressant medications. The relationship between health insurance and access to antidepressant treatment extends similar previous findings from a nationally representative sample of young adults.³⁹

Approximately 1 in 8 children treated for depression received more than 1 class of psychotropic medication. Combined pharmacotherapy, though potentially important in the care of select children and adolescents, poses added safety risks.⁴⁰ At present, there is a near absence of published data on the safety and efficacy of combined pharmacological regimens for the treatment of mental disorders in children and adolescents.

The treatment of children and adolescents with depression commonly involves antidepressant medications and psychotherapy. Recent research suggests that the combination of an antidepressant and cognitive-behavioral psychotherapy is more efficacious than either treatment alone for adults with chronic forms of major depression.⁴¹ The extent to which combined treatments confer meaningful advantages vs single-modality treatments for children and adolescents with depression is the focus of a large, ongoing National Institute of Mental Health-funded multisite clinical trial. Despite the current dearth of experimental data, combined treatment remains a relatively common option in clinical practice.

The current study is constrained by several limitations. The surveys collect data from household informants who may not be fully aware of all of the services used by the children or adolescents in the household. Stigma and recall problems threaten the validity of the survey data. Some informants may not be able to identify psychotherapy or mental health counseling, and no information is available on the specific psychotherapeutic techniques and the extent to which they resemble evidence-based approaches. Some counseling sessions provided outside of a health care context, for example by religious counselors and social workers in human service agencies, were not included in the survey. Varia-

tion in the timing of depression treatment and health assessments may have attenuated associations between these variables. In addition, a substantial proportion of sampled households did not participate in the surveys. Although we cannot be certain of the effect of nonresponse on the study findings, statistical adjustments were made for nonresponse. Finally, the surveys did not break out providers by physician specialty, thereby preventing comparisons between management provided by psychiatrists, pediatricians, and other medical specialists.

The treatment of children and adolescents with depression in the community is often brief. Fewer than one third of treated children and adolescents undergo 10 or more treatment visits during the course of 1 year. At the same time, most children or adolescents treated for depression receive antidepressant medications. The effectiveness of this pattern of treatment remains unknown. To evaluate the effectiveness of current treatment practices, we must move beyond general household surveys of health care use, such as the MEPS. Large community-based studies are needed to assess the validity of clinical diagnoses, provide structured evaluations of functional impairment before and after treatment, and relate variations in treatment to key clinical outcomes.

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