The Epidemiology of Major Depressive Disorder

Results From the National Comorbidity Survey Replication (NCS-R)

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Context Uncertainties exist about prevalence and correlates of major depressive disorder (MDD).

Objective To present nationally representative data on prevalence and correlates of MDD by *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition* (*DSM-IV*) criteria, and on study patterns and correlates of treatment and treatment adequacy from the recently completed National Comorbidity Survey Replication (NCS-R).

Design Face-to-face household survey conducted from February 2001 to December 2002.

Setting The 48 contiguous United States.

Participants Household residents ages 18 years or older (N=9090) who responded to the NCS-R survey.

Main Outcome Measures Prevalence and correlates of MDD using the World Health Organization's (WHO) Composite International Diagnostic Interview (CIDI), 12-month severity with the Quick Inventory of Depressive Symptomatology Self-Report (QIDS-SR), the Sheehan Disability Scale (SDS), and the WHO disability assessment scale (WHO-DAS). Clinical reinterviews used the Structured Clinical Interview for *DSM-IV*.

Results The prevalence of CIDI MDD for lifetime was 16.2% (95% confidence interval [CI], 15.1-17.3) (32.6-35.1 million US adults) and for 12-month was 6.6% (95% CI, 5.9-7.3) (13.1-14.2 million US adults). Virtually all CIDI 12-month cases were independently classified as clinically significant using the QIDS-SR, with 10.4% mild, 38.6% moderate, 38.0% severe, and 12.9% very severe. Mean episode duration was 16 weeks (95% CI, 15.1-17.3). Role impairment as measured by SDS was substantial as indicated by 59.3% of 12-month cases with severe or very severe role impairment. Most lifetime (72.1%) and 12-month (78.5%) cases had comorbid CIDI/*DSM-IV* disorders, with MDD only rarely primary. Although 51.6% (95% CI, 46.1-57.2) of 12-month cases received health care treatment for MDD, treatment was adequate in only 41.9% (95% CI, 35.9-47.9) of these cases, resulting in 21.7% (95% CI, 18.1-25.2) of 12-month MDD being adequately treated. Sociodemographic correlates of treatment were far less numerous than those of prevalence.

Conclusions Major depressive disorder is a common disorder, widely distributed in the population, and usually associated with substantial symptom severity and role impairment. While the recent increase in treatment is encouraging, inadequate treatment is a serious concern. Emphasis on screening and expansion of treatment needs to be accompanied by a parallel emphasis on treatment quality improvement.

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ALTHOUGH COMMUNITY SURveys of mental disorders have been conducted in the United States since the end of World War II,[1-3] it was not until the early 1980s that fully structured lay interviews were developed to diagnose specific mental disorders. The first such instrument was the Diagnostic Interview Schedule (DIS),[4] which was developed for use in the Epidemiologic Catchment Area (ECA) study[5] to estimate the general population prevalence of mental disorders by *Diagnostic and Statistical Manual of Mental Disorders, Third Edition* (*DSM-III*) criteria.[6] Major depressive disorder (MDD) prevalence estimates in the ECA sites were 3.0% to 5.9% for lifetime and 1.7% to 3.4% for 12-month.[7]

The first nationally representative survey using a method similar to the ECA, the National Comorbidity Survey (NCS),[8] was conducted a decade later in 1990-1992. The NCS diagnostic instrument was a modified version of the Composite International Diagnostic Interview (CIDI)[9] to assess mental disorders by

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Diagnostic and Statistical Manual of Mental Disorders, Revised Third Edition (*DSM-III*-R) criteria.[10] The NCS age range was 15 years to 54 years, rather than 18 years or older in the ECA. The prevalence estimates of MDD in the NCS were substantially higher than in the ECA: 14.9% for lifetime and 8.6% for 12-month.[11]

Despite their different prevalence estimates, the ECA and NCS results were very similar in finding early age of onset of MDD[12,13] and high comorbidity with other *DSM* disorders.[11,14] A methodological study showed that the ECA-NCS prevalence differences in the age range of 18 years to 54 years could be substantially reduced by combining the 2 waves of ECA data to make up for the memory priming strategies and respondent motivation techniques used in the NCS.[15]

Although the estimated number of individuals in the total population who seek treatment for a mental health problem in a given year was somewhat lower in the ECA (12.3%) than the NCS (13.3%), 12-month treatment among respondents who met criteria for MDD was higher in the ECA (53.9%) than in the NCS (36.4%).[16,17] A plausible interpretation is that the higher NCS prevalence estimate included more mild cases, with patients with mild MDD less likely to seek treatment. Consistent with this possibility, multiplication of estimated prevalence by conditional treatment rate leads to an estimate that 2.7% of the population was in treatment for MDD in the 12 months before the ECA survey compared with 3.1% before the NCS survey.

In the decade since the NCS was conducted, a large increase in the proportion of Americans who receive medication for depression was reported[18] and a number of large programs to promote awareness of depression were launched.[19,20] At least part of this growth in depression awareness and treatment has occurred as a result of a growing realization that depression is a very common and very serious illness.[21,22] Indeed, the World Health Organization (WHO) now ranks major depression as one of the most burdensome diseases in the world.[23]

This growing recognition of the public health burden of depression also has led to the development and evaluation of model primary care programs for depression detection and treatment.[24-26] Even though a number of these programs have been shown to be cost-effective, dissemination has been hampered by reluctance to implement them on the part of primary care physicians.[27]

During this same time period, the American Psychiatric Association introduced the *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition* (*DSM-IV*) system, which emphasizes the clinical significance requirement for a diagnosis of MDD more prominently than did in the earlier *DSM* editions.[28] This new emphasis occurred, in no small part, in reaction to the perception that the prevalence estimates in the ECA study were unrealistically high. The even higher NCS estimates, which were published only after the *DSM-IV* criteria were established, only reinforced this concern.[15] Indeed, a recent critique of the ECA and NCS argued that a substantial proportion of respondents classified as cases were clinically insignificant, leading to an overestimation of the 12-month depression prevalence of 29% in the ECA and of 58% in the NCS.[29] However, this critique was based on the use of imprecise indicators for severity symptoms, raising questions about adjusted prevalence estimates.[30]

Based on the introduction of the *DSM-IV* criteria, in conjunction with evidence of changes in treatment over the past decade, a new national survey of mental disorders was conducted in 2001-2002. The survey was designed to update information on the prevalence, correlates, and clinical significance of *DSM* disorders, and to study patterns and correlates of treatment and treatment adequacy. The current report is the first presentation of results from this new survey, the National Comorbidity Survey Replication (NCS-R).[31]

METHODS

Participants

The NCS-R is a nationally representative face-to-face household survey of 9090 respondents ages 18 years or older conducted between February 2001 and December 2002. Respondents were selected from a multistage area probability sample of the noninstitutionalized civilian population in the 48 contiguous states. The response rate was 73.0%. All respondents were administered a part 1 diagnostic interview as described below, while 5554 respondents also received a part 2 interview that included assessments of risk factors and additional mental disorders. The sample receiving part 2 consisted of all respondents who screened positive for any disorder found in part 1 plus a probability subsample of other part 1 respondents.

The sample receiving part 1 was weighted to adjust for differential probabilities of selection within households and for differences in intensity of recruitment effort among hard-to-recruit cases and poststratified to match the 2000 census population distribution on a number of geographic and sociodemographic variables. The sample receiving part 2 was additionally weighted to adjust for differential probabilities of selection. The weighted sample distributions closely match those of the US population on a variety of sociodemographic and geographic variables (TABLE 1).

A probability sample of 308 NCS-R respondents completed a clinical reappraisal interview to evaluate lifetime diagnoses, and a nonoverlapping probability sample of 335 respondents completed a separate reappraisal interview to evaluate 12-month diagnoses. These reappraisal samples oversampled CIDI cases. The data were weighted to adjust for this oversampling so that estimates of sensitivity, specificity, and total classification accuracy would be unbiased.

Recruitment to the initial NCS-R interview began with a letter and study fact brochure mailed to sample households followed by an in-person interviewer visit. Interviewers explained the study procedures and obtained verbal informed consent before beginning the interview. Participants received $50 as a gift to thank them for participating. Recruitment and consent procedures were

approved by the human subjects committees of both Harvard Medical School and the University of Michigan.

Measures

Diagnostic Assessment. The NCS-R diagnostic instrument was an expanded version of the WHO's CIDI,[9] a fully structured instrument for use by trained interviewers who do not have clinical experience. Diagnoses are based on *DSM-IV* criteria.[28] Organic exclusions and diagnostic hierarchy rules were both applied in making diagnoses. In addition to the prevalence and correlates of MDD, in this article we also report comorbidity with anxiety disorders (panic disorder, agoraphobia without panic, social anxiety disorder, specific phobia, generalized anxiety disorder, obsessive-compulsive disorder, and posttraumatic stress disorder), substance use disorders (alcohol and drug abuse and dependence), and a group of disorders that we refer to as "impulse-control disorders" (intermittent explosive disorder, antisocial personality disorder, bulimia, and pathological gambling).

Previous methodological research documented acceptable-to-good concordance between the NCS/CIDI diagnoses and blind clinical diagnoses, but found that the NCS CIDI overdiagnosed MDD because of false-positive assessments of dysphoria and anhedonia.[32] The CIDI false-positive assessments included both respondents with clinically nonsignificant distress and those whose symptoms did not persist for most of the day, nearly every day, or for 2 weeks or longer. The NCS-R revisions attempted to correct these problems by including explicit probes for severity of dysphoria and anhedonia, by requiring clinically significant distress or impairment associated with these symptoms, and by asking separate questions about symptom duration (hours per day, days per week, and duration of depressive episodes).

The core of the clinical reappraisal interviews was the structured clinical interview for *DSM-IV* (SCID),[33] a diagnostic interview that requires clinical expertise to administer. Nonaffective psychosis and mania were not included in the SCID because they are being assessed in separate, in-progress, focused reappraisal studies. Because of the absence of mania, the SCID cannot be used to generate diagnoses of MDD. However, it can be used to diagnose major depressive episode (MDE). A comparison of the CIDI and SCID for MDE classifications in the clinical reappraisal samples (TABLE 2) shows good concordance for lifetime ($\kappa = .59$; 95% CI, .47-.71) and fair concordance for 12-month ($\kappa = .40$; 95% CI, .20-.60) estimates. CIDI lifetime prevalence for MDE is significantly lower than SCID prevalence ($\chi^2_1 = 8.1$, $P = .004$) while CIDI 12-month prevalence is marginally higher than SCID prevalence ($\chi^2_1 = 3.2$, $P = .07$).

Role Impairment. Respondents with CIDI/*DSM-IV* 12-month MDD were administered the Sheehan Disability Scale (SDS)[34] to assess the extent to which depression interfered with functioning in work, household, relationship, and social roles in the worst month of the past year. Responses were scored with a 0-to-10 visual analogue scale having response options labeled none (0), mild (1-3), moderate (4-6), severe (7-9), and very severe (10). In addition, an open-ended question asked respon-

Table 1. Sociodemographic Distribution of the National Comorbidity Survey Replication (NCS-R) Sample Compared With the US Population

Characteristic	NCS-R, % (SE) Part 1 Unweighted (N = 9090)	Part 1 Weighted (N = 9090)	Part 2 Weighted (n = 5554)	US Population (N = 209.1 m), %*
Age, y				
18-29	22.6 (1.0)	24.0 (0.9)	23.8 (1.1)	22.1
30-44	31.5 (0.5)	30.2 (0.6)	28.9 (0.8)	31.7
45-59	24.7 (0.6)	24.4 (0.6)	26.1 (1.0)	24.4
≥60	21.2 (0.6)	21.5 (0.6)	21.2 (1.2)	21.9
Sex				
Male	44.5 (0.5)	48.2 (0.6)	48.2 (1.0)	48.2
Female	55.5 (0.5)	51.8 (0.6)	51.8 (1.0)	51.8
Employment status				
Employed	68.0 (0.8)	67.5 (0.8)	67.2 (1.1)	63.8
Unemployed	3.9 (0.3)	3.9 (0.3)	3.7 (0.3)	3.7
Not in the labor force	28.2 (0.6)	28.7 (0.7)	29.0 (1.1)	32.5
Education, y				
0-11	14.6 (0.6)	15.1 (0.7)	14.8 (0.9)	20.3
12	30.0 (0.9)	30.7 (0.9)	30.8 (1.0)	28.6
13-15	29.4 (0.6)	29.3 (0.6)	30.0 (0.8)	28.8
≥16	25.9 (1.0)	24.9 (1.0)	24.4 (1.0)	22.3
Marital status				
Married/cohabitating	57.2 (1.0)	63.1 (0.9)	63.6 (1.1)	57.4
Divorced/separated/widowed	21.8 (0.5)	16.6 (0.5)	16.4 (0.6)	19.6
Never married	21.0 (1.0)	20.3 (0.9)	20.0 (1.1)	23.0
Race/ethnicity				
Hispanic	9.5 (1.0)	12.5 (1.2)	12.4 (1.3)	11.0
Non-Hispanic black	13.0 (1.1)	11.9 (1.1)	12.4 (1.1)	11.2
Non-Hispanic white	72.0 (1.8)	70.3 (2.0)	70.6 (1.9)	71.9
Other	5.5 (0.7)	5.3 (0.8)	4.6 (0.5)	6.0
Region				
Northeast	18.3 (1.8)	19.3 (1.8)	19.3 (2.0)	19.4
Midwest	26.7 (1.7)	23.0 (1.6)	23.1 (1.7)	22.8
South	34.4 (1.0)	35.7 (1.1)	35.5 (1.2)	35.7
West	20.5 (0.6)	21.9 (0.7)	22.1 (1.2)	22.1

*All US population data other than those for employment status are based on the 2000 census for people ages 18 years or older (United States Census Bureau. 2002. *Census 2000 Summary Files—United States*. Available at: http://factfinder.census.gov. Accessed January 13, 2003). Data on employment status are based on the December 2002 Current Population Survey (United States Bureau of Labor Statistics. *Current Population Survey Summary Files, December, 2002*. Available at: http://stats.bls.gov/cps/cpstn1.htm. Accessed January 13, 2003).

Table 2. Correspondence Between Diagnoses of *DSM-IV* Major Depressive Episode in the Weighted Part 1 NCS-R (CIDI) Sample and the Weighted Clinical Reinterview Samples (SCID)

	Prevalence		CIDI Test Characteristics, % (95% CI)					CIDI/SCID		
	CIDI	SCID	Sensitivity	Specificity	Positive Predictive Value	Negative Predictive Value	Total Classification Accuracy	Concordance (Cohen κ)	Bias (McNemar χ^2)	*P* Value
Lifetime (n = 308)	17.9	24.2	58.8 (45.5-72.1)	94.8 (92.1-97.5)	78.3 (67.3-89.2)	87.8 (82.7-92.9)	86.1 (81.4-90.8)	.59 (.47-.71)	$\chi^2_1 = 8.1$	.004
12-Month (n = 335)	7.6	5.2	54.6 (37.5-71.7)	94.7 (92.9-96.5)	64.1 (50.8-77.4)	97.5 (96.1-98.9)	92.7 (90.7-94.7)	.40 (.20-.60)	$\chi^2 = 3.2$	.07

Abbreviations: CIDI, Composite International Diagnostic Interview; *DSM-IV*, *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition*; MDE, major depressive episode; NCS-R, National Comorbidity Survey Replication; SCID, Structured Clinical Interview for *DSM-IV*.

dents to estimate the number of days in the past 365 days when they were "totally unable to work or carry out your normal activities" because of depression.

All respondents to part 2 of the NCS-R completed the WHO disability assessment schedule (WHO-DAS)[35] to assess functional impairments in 6 domains during the past 30 days: domain 1, the number of days in the past 30 days when the respondent was completely unable to work or carry out their normal activities because of physical or mental health problems; and domains 2 to 6, the severity-persistence of impairments in 5 domains of functioning during the same time period. These domains include self-care (eg, bathing, dressing), mobility (eg, standing, walking), cognition (eg, concentrating, remembering), social functioning (eg, conversing, maintaining emotional control while around others), and role functioning (eg, quality and quantity of normal activities at home or work). All 6 WHO-DAS scales were transformed to a theoretical range of 0 (no impairment at any time in the past 30 days) to 1.0 (complete inability to perform the functions throughout the full 30 days).

Symptom Severity. Respondents who met CIDI/*DSM-IV* criteria for 12-month MDD were self-administered a truncated version of the Quick Inventory of Depressive Symptomatology Self-Report (QIDS-SR)[36] to assess symptom severity in the worst month of the past year. The QIDS-SR is a fully structured measure that is strongly related both to the clinician-administered Inventory of Depressive Symptomology (IDS-C)[37] and to the Hamilton Rating Scale of Depression (HRSD).[38] Transformation rules developed for the QIDS-SR[39] were used to convert scores into clinical severity categories mapped to conventional HRSD ranges of none (ie, not clinically depressed), mild, moderate, severe, and very severe.

12-Month Treatment. All respondents to part 2 of the NCS-R were asked about receiving 12-month treatment for emotional problems, the type of professional seen, as well as use of support groups, self-help groups, and hotlines. Number and duration of 12-month visits also were assessed. Responses were used to classify 12-month treatment in the specialty mental health (SMH) sector (inpatient treatment or outpatient treatment with a psychiatrist, psychologist, any other mental health professional, or a social worker or counselor in a mental health specialty setting, or use of a hotline), the general medical (GM) sector (outpatient treatment with a primary care physician, other medical specialist, nurse, or any other health professional not previously mentioned), the human services (HS) sector (outpatient treatment with a religious or spiritual advisor or with a social worker or counselor in any setting other than a specialty mental health setting), and the complementary-alternative medical (CAM) sector (outpatient treatment with any other type of healer, participation in an internet support group, or participation in a self-help group). In addition, a pharmaco-epidemiologic section asked respondents about use of psychotropic medications in the past 12 months. Information was recorded by having respondents give their medicine bottles to the interviewer to inspect and to record the type of medication, duration of treatment, maximum prescribed dose, and specialty of prescribing physician.

Based on the above data, minimally adequate medical treatment for MDD was defined as receiving either (1) at least 4 outpatient visits with any type of physician for pharmacotherapy that included use of either an antidepressant or mood stabilizer for a minimum of 30 days or (2) at least 8 outpatient visits with any professional in the specialty mental health sector for psychotherapy lasting a mean of at least 30 minutes. The decision to require at least 4 pharmacotherapy visits was based on the recommendation from evidence-based treatment guidelines that no fewer than 4 visits for follow-up and medication monitoring were required during the acute and continuation phases of treatment for depression.[40,41] At least 8 psychotherapy visits were required based on evidence from clinical trials that time-limited depression psychotherapy treatment with demonstrated effectiveness requires at least 8 sessions.[40,41]

Human services and CAM treatments were classified as not being adequate based on the absence of experimental data documenting effectiveness in treating MDD. Health care treatment, which was defined as treatment in either the SMH or GM sectors, was considered inadequate when this treatment failed to meet either of the above 2 criteria for minimally adequate treatment. Respondents who reported 12-month use of psychotropic medica-

tions under the supervision of a health care professional, but who never made a visit to that professional at any time during those 12 months, were coded as receiving inadequate health care treatment, but not receiving either inadequate SMH or inadequate GM treatment.

Sociodemographics. A standard battery of sociodemographic variables (eg, age, sex, employment status, education, income) was administered to all respondents. In addition, sample information was linked to interview location records to classify each respondent by major census region (Northeast, Midwest, South, and West), and by the Department of Agriculture's urban-rural continuum of counties (major metropolitan counties, other urbanized counties, and rural counties).

Interviewer Training and Field Quality Control

Professional lay interviewers from the Institute for Social Research at the University of Michigan administered the NCS-R. More than 300 interviewers participated in the study, each receiving 7 days of study-specific training and successfully completing 2 practice interviews before beginning production work. Interviews were administered using laptop computer–assisted software that included built-in skip logic, timing flags, and consistency checks. Regional supervisors recontacted a random 10% of respondents for quality control.

Five experienced clinical psychologists administered the clinical reappraisal SCID interviews. Each received 80 hours of training and successfully completed 2 practice interviews before beginning production work. Interviews were conducted by telephone and were tape recorded with the verbal permission of respondents. Interviewers wrote extensive notes to justify ratings. A clinical supervisor reviewed the notes and reviewed the tape recordings of the first 10 interviews for each interviewer plus other tape recordings as needed. The interviewer or supervisor recontacted the respondent to obtain additional information when there was ambiguity about ratings. Biweekly review meetings were used to prevent interviewer drift.

Statistical Analysis

Cross-tabulations were used to calculate prevalence, comorbidity, symptom severity, impairment, treatment, and treatment adequacy. The Kaplan-Meier method[42] was used to generate age-at-onset curves. Logistic regression analysis[43] was used to study demographic correlates of prevalence and treatment. The logistic regression coefficients were transformed to odds ratios (ORs) for ease of interpretation. Ninety-five percent confidence intervals (CIs) were estimated using the Taylor series linearization method implemented in the SUDAAN software package.[44] Multivariate significance tests were calculated using Wald χ^2 tests based on coefficient variance-covariance matrices that were adjusted for design effects using the Taylor series method. Statistical significance was based on 2-sided design-based tests evaluated at the .05 level of significance.

RESULTS

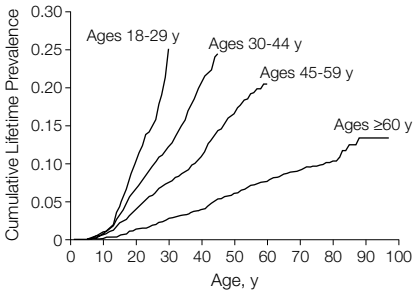
Prevalence of MDD

The prevalence estimates for CIDI/*DSM-IV* MDD in the total NCS-R sample were 16.2% (95% CI, 15.1-17.3) for lifetime and 6.6% (95% CI, 5.9-7.3) for the 12 months before the interview; the ratio of 12-month to lifetime prevalence was approximately 40%. These prevalences were equivalent to national population projections of 32.6 to 35.1 million US adults with lifetime MDD and 13.1 to 14.2 million with 12-month MDD.

Age-At-Onset of MDD

Kaplan-Meier curves for age-at-onset of MDD were generated separately for 4 groups of birth cohorts (FIGURE) and defined by age at interview (18-29, 30-44, 45-59, or ≥60 years). The curves are significantly different from each other (χ^2_3=290.1, P<.001 for all). Risk is fairly low until the early teens, when it begins to rise in roughly linear fashion with an increasingly steep slope in successively more recent cohorts.

Figure. Cumulative Lifetime Prevalence of CIDI/*DSM-IV* Major Depressive Disorder by Birth Cohort



χ^2_3=290.1, P<.001 for all. Analysis used weighted data.

Sociodemographic Correlates

Either lifetime MDD or 12-month MDD among lifetime cases was meaningfully elevated (ie, statistically significant at the .05 level with ORs ≥1.5) among respondents in the age range of 18 years to 59 years for lifetime or 18 years to 44 years for 12-month, and for women (lifetime only), homemakers (12-month only), respondents who were classified as "other" in employment status (consisting mainly of those who were unemployed or disabled), the never married (12-month only), the previously married (lifetime only), those with less than 12 years of education (12-month only), and those living in or near poverty (http://aspe.hhs.gov/poverty/01poverty.htm) (12-month only). (TABLE 3) Other employment status, being previously married, and low income also were associated with meaningfully elevated severe MDD (defined by the QIDS-SR) among 12-month cases. The prevalence of lifetime MDD was meaningfully lower (ie, statistically significant at the .05 level with ORs ≤0.67) among people who were retired and Non-Hispanic blacks than among comparison cases, while 12-month MDD was less likely to be clinically severe in the Northeast and Midwest than other regions of the country. Major depressive disorder was largely unrelated to geography (region of the country or urbanicity). Despite the large number of meaningful associations, only a few were strong (ie, ORs >3.0 or <0.33).

Table 3. Bivariate Sociodemographic Correlates of 12-Month and Lifetime CIDI/*DSM-IV* for Major Depressive Disorder (MDD) in the Weighted Part 2 NCS-R Sample

Correlates	MDD Cases, Odds Ratio (95% CI)		
	Lifetime (n = 9083)	12-Month Among Lifetime (n = 1530)	12-Month Severe Among 12-Month (n = 514)*
Age, y			
18-29	1.7 (1.4-2.2)†	3.0 (2.0-4.4)†	1.2 (0.5-2.9)
30-44	2.2 (1.8-2.8)†	1.8 (1.1-2.9)†	1.5 (0.7-3.2)
45-59	2.0 (1.6-2.6)†	1.2 (0.8-1.8)	1.7 (0.7-4.0)
60+	1.0	1.0	1.0
	χ^2_3 = 53.5†	χ^2_3 = 42.3†	χ^2_3 = 1.9
Sex			
Female	1.7 (1.5-2.0)†	1.4 (1.1-1.8)†	1.3 (1.0-1.9)
Male	1.0	1.0	1.0
	χ^2_1 = 47.8†	χ^2_1 = 9.8†	χ^2_1 = 3.5
Race/ethnicity			
Hispanic	1.0 (0.8-1.3)	1.6 (1.0-2.6)	0.5 (0.2-1.1)
Non-Hispanic black	0.6 (0.5-0.8)†	1.3 (0.8-2.2)	1.0 (0.5-2.0)
Non-Hispanic white	1.0	1.0	1.0
Other	1.2 (1.0-1.5)	1.4 (0.9-2.2)	0.7 (0.3-1.5)
	χ^2_3 = 16.7†	χ^2_3 = 6.1†	χ^2_3 = 4.1
Employment status			
Employed	1.0	1.0	1.0
Homemaker	0.8 (0.6-1.1)	2.4 (1.5-3.9)†	1.4 (0.7-2.7)
Retired	0.6 (0.4-0.7)†	0.9 (0.6-1.4)	0.9 (0.4-2.0)
Student	0.7 (0.4-1.1)	2.8 (1.0-7.8)	1.2 (0.4-3.6)
Other	1.5 (1.1-2.0)†	2.2 (1.6-3.0)†	3.4 (1.7-6.7)†
	χ^2_4 = 50.4†	χ^2_4 = 48.7†	χ^2_4 = 14.4
Marital status			
Married	1.0	1.0	1.0
Never married	1.2 (1.0-1.4)	2.3 (1.7-3.2)†	1.1 (0.6-1.9)
Divorced/separated/widowed	1.5 (1.2-1.8)†	1.4 (1.0-1.9)	1.6 (1.1-2.4)†
	χ^2_2 = 18.1†	χ^2_2 = 28.6†	χ^2_2 = 6.7†
Education, y			
0-11	0.8 (0.6-0.9)†	1.9 (1.3-2.8)†	1.7 (0.7-3.8)
12	0.9 (0.8-1.1)	1.1 (0.8-1.6)	1.2 (0.6-2.4)
13-15	1.0 (0.8-1.2)	1.3 (1.0-1.9)	1.0 (0.5-1.8)
≥16	1.0	1.0	1.0
	χ^2_3 = 8.3†	χ^2_3 = 10.4†	χ^2_3 = 6.5
Income categories‡			
Below poverty	0.9 (0.7-1.2)	3.8 (2.4-6.1)†	2.2 (1.2-3.9)†
1-3 Times poverty	0.9 (0.8-1.1)	1.8 (1.3-2.4)†	1.4 (0.9-2.4)
3-6 Times poverty	0.9 (0.8-1.1)	1.2 (0.9-1.6)	1.0 (0.6-1.7)
≥6 Times poverty	1.0	1.0	1.0
	χ^2_3 = 1.5	χ^2_3 = 41.9†	χ^2_3 = 10.4†
Region			
Northeast	1.0 (0.8-1.3)	1.0 (0.7-1.5)	0.5 (0.3-0.7)†
Midwest	1.3 (1.1-1.5)†	0.8 (0.6-1.0)	0.6 (0.3-0.9)†
South	1.3 (1.0-1.6)	0.9 (0.7-1.3)	0.7 (0.4-1.0)
West	1.0	1.0	1.0
	χ^2_3 = 9.7†	χ^2_3 = 3.7	χ^2_3 = 18.8†
Urbanicity			
Major metropolitan	1.1 (0.9-1.4)	1.3 (0.9-1.8)	1.0 (0.6-1.6)
Other urban	1.2 (0.9-1.4)	1.3 (0.9-1.7)	1.2 (0.8-1.8)
Rural	1.0	1.0	1.0
	χ^2_2 = 1.6	χ^2_2 = 2.9	χ^2_2 = 1.0

*Cases with missing Quick Inventory of Depressive Symptomology Self-Report (QIDS-SR) scores are omitted (n = 108). Severe or very severe vs mild or moderate symptoms on the QIDS-SR.
†Significant at the .05 level, 2-sided test.
‡Poverty categories were determined by the ratio of family income to the 2001 US Department of Health and Human Services poverty guidelines, taking into account the number of persons in the household (http: aspe.hhs/gov/poverty/01poverty.htm).

Comorbidity

Nearly three fourths (72.1%) of respondents with lifetime MDD also met the criteria for at least 1 of the other CIDI/*DSM-IV* disorders assessed in the NCS-R, including 59.2% with anxiety disorder, 24.0% with substance use disorder, and 30.0% with impulse control disorder. (TABLE 4) Approximately two thirds (64.0%) of respondents with 12-month MDD met the criteria for at least 1 other 12-month disorder, with anxiety disorders (57.5%) again more common than either substance use (8.5%) or impulse control (16.6%) disorders (Table 4). Comparison of age-at-onset reports (Table 4) shows MDD to be temporally primary to all other comorbid disorders among 12.3% of respondents with lifetime MDD and 12.6% of those with 12-month MDD. For lifetime and 12-month MDD, temporally prior MDD was much more common in relation to substance use disorders (41.3% and 49.2%) than either anxiety (13.7% and 14.6%) or impulse control (16.9% and 20.8%) disorders.

Role Impairment of 12-Month MDD

Nearly all (96.9%) respondents with 12-month MDD reported at least some role impairment associated with their depression in at least 1 of the 4 SDS role domains, with 87.4% describing this impairment as at least moderate, 59.3% as either severe or very severe, and 19.1% as very severe. (TABLE 5) Impairment was greatest in the social role domain (43.4% severe or very severe) and was least in the work role domain (28.1% severe or very severe).

Respondents with 12-month MDD reported a mean of 35.2 (95% CI, 26.8-43.6) days in the past year when they were totally unable to work or carry out their normal activities because of their depression. Overall SDS scores are significantly related ($F_{4,617}$=17.1, P<.001) to days out of role (Table 5), from a high of 96.5 days among respondents who reported very severe role impairment to a low of zero among those who reported no role impairment.

Comparison of respondents with MDD vs those with no lifetime history of MDD

on the WHO-DAS dimensions provides additional evidence of broad-based impairment associated with MDD (TABLE 6). Recent MDD (within 30 days of the interview) is associated with statistically significant impairments in all 6 WHO-DAS domains compared with respondents who never met criteria for MDD. These include impairments more than a full SD above the sample-wide mean in 30-day cognitive functioning and social functioning, more than 75% of an SD above the mean in days out of role and role functioning, more than 60% of an SD above the mean in mobility, and nearly 50% of an SD above the mean in self-care (all adjusted for age, sex, and race/ethnic differences between respondents with and without

Table 4. Comorbidity of CIDI/*DSM-IV* Major Depressive Disorders With Other NCS-R Disorders in the Weighted Part 2 NCS-R*

	MDD Cases With Comorbid Disorders, % (95% CI)			
	Anxiety	Substance Use	Impulse Control	Any
Lifetime comorbidity†				
Lifetime (n = 1530)	59.2 (56.2-62.1)	24.0 (21.8-26.2)	30.0 (27.9-32.1)	72.1 (69.8-74.4)
12-Month (n = 622)	67.8 (63.6-72.0)	27.1 (23.1-31.1)	37.3 (33.8-40.8)	78.5 (74.8-82.3)
12-Month comorbidity‡				
12-Month (n = 622)	57.5 (53.3-61.7)	8.5 (6.4-10.6)	16.6 (13.0-20.2)	64.0 (59.6-68.5)
Temporal priority of MDD§				
Lifetime (n = 1103)	13.7 (11.0-16.3)	41.3 (35.5-47.1)	16.9 (12.5-21.3)	12.3 (10.4-14.2)
12-Month (n = 488)	14.6 (10.4-18.8)	49.2 (41.6-56.8)	20.8 (14.2-27.3)	12.6 (9.0-16.3)

Abbreviations: CIDI, Composite International Diagnostic Interview; *DSM-IV, Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition*; MDD, major depressive disorder; NCS-R, National Comorbidity Survey Replication.
*Anxiety disorders include panic disorder, generalized anxiety disorder, phobias (specific, social, agoraphobia), posttraumatic stress disorder, and obsessive-compulsive disorder. Impulse control disorders include intermittent explosive disorder, pathological gambling, bulimia, conduct disorder, oppositional defiant disorder, and antisocial personality disorder. Substance use disorders include alcohol or drug abuse or dependence.
†Entries are the percentage of respondents with either lifetime or 12-month MDD who also meet lifetime criteria for at least 1 of the other CIDI/*DSM-IV* disorders that were assessed in the NCS-R.
‡Entries are the percentage of respondents with 12-month MDD who also meet 12-month criteria for at least 1 of the other disorders.
§Entries are the percentage of respondents with either lifetime or 12-month MDD and at least 1 of the other disorders whose age at first onset of MDD is reported to be younger than the age at first onset of all comorbid disorders in the category under consideration (ie, either anxiety, substance use, impulse control, or any disorder).

Table 5. Severity of Role Impairment by the Sheehan Disability Scale Associated With 12-Month CIDI/*DSM-IV* Major Depressive Disorder in the Weighted Part 1 NCS-R Sample (n = 622)

	MDD Cases in SDS Category, % (95% CI)				
SDS Domains	None	Mild	Moderate	Severe	Very Severe
Severity of role impairment					
Home	9.2 (6.4-12.0)	21.8 (17.2-26.3)	34.8 (30.0-39.6)	27.4 (22.9-32.0)	6.8 (4.4-9.2)
Work	20.4 (16.8-24.1)	25.9 (21.6-30.3)	25.6 (22.1-29.1)	18.5 (15.0-21.9)	9.6 (7.5-11.7)
Relationship	14.8 (11.2-18.5)	21.9 (17.6-26.2)	29.0 (25.6-32.4)	26.9 (23.4-30.3)	7.4 (5.0-9.8)
Social	12.1 (8.8-15.4)	16.7 (12.3-20.2)	27.7 (23.9-31.5)	31.4 (27.5-35.3)	12.0 (9.7-14.4)
Overall*	3.1 (1.8-4.5)	9.5 (6.8-12.2)	28.1 (23.5-32.7)	40.2 (36.2-44.1)	19.1 (16.0-22.3)
Mean No. of days out of role due to depression in the past 365 days†	0	2.8 (0-5.7)	11.4 (0-23.1)	33.1 (22.7-43.5)	96.5 (67.0-125.9)

Abbreviations: CIDI, Composite International Diagnostic Interview; *DSM-IV, Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition*; SDS, Sheehan Disability Scale.
*Highest severity category across all 4 SDS role domains.
†Mean days out of role are presented separately in subgroups of respondents defined by their highest severity category across all 4 SDS role domains ($F_{4,617}$ = 17.1, P<.001).

Table 6. Thirty-Day Standardized Comparisons of Functional Impairment by the WHO-DAS Among Respondents With vs Without CIDI/*DSM-IV* Major Depressive Disorder in the Weighted Part 2 NCS-R*

	Recency of MDD, Mean Score (95% CI)					
WHO-DAS Domains	Past 30 d (n = 222)	Past 12 Months (n = 399)	>12 Months Ago (n = 889)	No Lifetime MDD (n = 4044)	$F_{3,9086}$	*P* Value‡
Out of role	0.25 (0.17 to 0.33)†	0.06 (0.02 to 0.09)†	0.01 (0 to 0.02)	–0.01 (–.02 to 0)	13.5	<.001
Self-care	0.10 (0.04 to 0.16)†	0.02 (0 to 0.04)	0.01 (0 to 0.02)	0 (–0.01 to 0)	5.0	.005
Mobility	0.17 (0.09 to 0.25)†	0.02 (0 to 0.05)	0.02 (0 to 0.04)	–0.01 (–0.02 to 0)	6.9	<.001
Cognition	0.29 (0.22 to 0.36)†	0.11 (0.07 to 0.15)†	0.01 (0 to 0.03)	–0.01 (–.002 to –0.01)	32.2	<.001
Productivity	0.21 (0.15 to 0.28)†	0.08 (0.04 to 0.12)†	0.02 (0 to 0.04)	–0.01 (–0.02 to 0)	18.7	<.001
Social	0.27 (0.20 to 0.33)†	0.06 (0.02 to 0.10)†	0.01 (0 to 0.02)	–0.01 (–0.02 to 0)	28.8	<.001

Abbreviations: CIDI, Composite International Diagnostic Interview; *DSM-IV, Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition*; MDD, Major Depressive Disorder; WHO-DAS, World Health Organization–Disability Assessment Schedule.
*Each of the 4 subgroups (ie, 3 with a history of MDD that differ in recency and a fourth consisting of all part 2 respondents who never met lifetime criteria for MDD) was weighted to have the sample-wide distribution of the cross-classification of age, sex, and race/ethnicity before calculating WHO-DAS means and CIs.
†Significantly different from respondents with no lifetime MDD at the .05 level, 2-sided test.
‡Comparison across the 4 recency categories.

MDD). These impairments appear to be state dependent, as the mean levels of impairment among respondents who had an episode of MDD earlier in the year are less strongly and consistently elevated (4 of the 6 WHO-DAS scores significantly elevated, with effect sizes 20%-45% of an SD about the mean), while respondents with a history of MDD who were not depressed in the past year have no significant elevations on any of the WHO-DAS dimensions.

Clinical Severity of 12-Month MDD

More than 99% of respondents with 12-month CIDI/DSM-IV MDD are independently classified by the QIDS-SR as having been clinically depressed during the worst month of the year, with 10.4% mild, 38.6% moderate, 38.0% severe, and 12.9% very severe (TABLE 7). Mild through severe cases as measured by QIDS-SR have mean durations of 13.8 to 16.6 weeks, while very severe cases have a mean duration of 23.1 weeks (Table 7). Symptom severity is strongly related both to role impairment and to comorbidity.

12-Month Treatment

An estimated 57.3% of respondents with 12-month MDD received some type of treatment in the 12 months before their interview (TABLE 8). The SMH sector was involved in the highest proportion of these cases (55.1% of treated cases) and the HS sector in the lowest proportion (16.0% of treated cases), with 90.0% of treated cases seen in the health care (HC) sectors (SMH, GM, or psychotropic medication use). Treatment met our criteria for being at least minimally adequate in 64.3% (95% CI, 55.4-73.1) of cases in SMH treatment, 41.3% (95% CI, 31.3-57.2) of cases in GM treatment, and 41.9% (95% CI, 35.9-47.9) in HC treatment (Table 8). Given that 51.6% (95% CI, 46.1-57.2) of cases received HC treatment for their depression, no more than 21.6% of all respon-

Table 7. Distributions and Correlates of Symptom Severity by Quick Inventory of Depressive Symptomatology Self-Report of 12-Month CIDI/*DSM-IV* Major Depressive Disorder in the Weighted Part 1 NCS-R*

	MDD Cases, Mean (95% CI)				
	Mild (n = 51)	Moderate (n = 194)	Severe (n = 204)	Very Severe (n = 65)	Total (N = 514)
Symptom severity, %	10.4 (7.3-13.4)	38.6 (34.5-42.7)	38.0 (34.1-42.0)	12.9 (9.6-16.3)	
Correlates of symptom severity					
Duration, wk†	15.3 (11.5-19.1)	13.8 (11.9-15.7)	16.6 (14.7-18.4)	23.1 (17.9-28.4)	16.2 (15.1-17.3)
Days out of role‡	6.1 (1.8-10.4)	15.7 (7.8-23.6)	44.8 (33.2-56.5)	91.4 (48.9-134.0)	35.6 (27.0-44.1)
Role impairment, %§	19.6 (8.7-30.5)	41.5 (33.4-49.7)	77.3 (71.1-83.6)	90.0 (82.4-97.7)	59.1 (53.7-64.6)
Comorbidity, %¶	34.9 (20.8-49.1)	58.0 (48.4-67.7)	77.3 (71.6-83.2)	82.1 (73.6-90.5)	66.1 (60.6-71.6)

Abbreviations: CIDI, Composite International Diagnostic Interview; *DSM-IV, Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition*; QIDS-SR, Quick Inventory of Depressive Symptomatology Self-Report.
*The QIDS-SR was self-administered in a respondent booklet that was collected at the end of the interview. Responses were incomplete for 103 cases. An additional 5 cases had QIDS-SR scores in the noncase range. All 108 of these cases were deleted from this table.
†Number of weeks respondent was depressed in the 365 days before the interview ($F_{3,510} = 6.0$, $P = .002$).
‡Number of days respondent was totally unable to work or carry on usual activities because of depression in the 365 days prior to the interviews ($F_{3,510} = 19.5$, $P<.001$).
§Percentage of respondents who reported severe or very severe impairment in at least 1 Sheehan Disability Scale role domain ($\chi^2_3 = 68.3$, $P<.001$).
¶Percentage of respondents with 2 or more comorbid 12-month CIDI/*DSM-IV* disorders, in which alcohol and drug abuse and dependence were treated as a single disorder for purposes of counting number of comorbid disorders ($\chi^2_3 = 34.6$, $P<.001$).

Table 8. Treatment in the Past 12 Months and Treatment Adequacy of 12-Month CIDI/*DSM-IV* Major Depressive Disorder by Symptom Severity Assessed by Quick Inventory of Depressive Symptomatology Self-Report in the Weighted Part 2 NCS-R

	MDD Cases With Symptom Severity (n = 514), % (95% CI)						
	Mild	Moderate	Severe	Very Severe	Total	χ^2_3	*P* Value†
Sector of treatment							
Specialty mental health	26.0 (13.7-38.3)	23.6 (18.3-29.0)	36.3 (28.8-43.8)	45.9 (35.5-56.4)	31.6 (27.7-35.5)	13.4*	.004
General medical	12.8 (2.2-23.4)	23.8 (17.6-30.0)	32.8 (24.3-41.3)	32.5 (17.5-47.6)	27.2 (22.4-32.0)	8.1*	.043
Health care‡	31.3 (18.3-44.3)	46.9 (40.1-53.7)	56.4 (47.7-65.1)	68.0 (55.0-80.9)	51.6 (46.1-57.2)	13.2*	.004
Human services	7.6 (–0.2-15.4)	9.7 (4.2-15.1)	9.5 (5.1-13.9)	8.3 (1.0-15.5)	9.2 (6.2-12.2)	0.2	.97
Complementary and alternative medicine	9.5 (3.4-15.6)	16.2 (9.1-23.2)	15.1 (9.6-20.6)	18.0 (7.2-28.9)	15.3 (11.9-18.7)	2.6	.46
Any	35.2 (22.5-47.9)	54.6 (48.6-60.6)	61.6 (53.3-69.8)	70.5 (57.7-83.3)	57.3 (51.9-62.8)	13.0*	.005
Treatment adequacy among							
Specialty mental health	37.0 (9.6-64.4)	61.0 (47.3-74.6)	63.5 (50.6-76.3)	83.5 (69.7-97.2)	64.3 (55.4-73.1)	7.9*	.048
General medicine	59.2 (19.3-99.0)	28.3 (15.0-41.5)	42.8 (27.8-57.8)	59.4 (36.1-82.8)	41.3 (31.3-57.2)	5.0	.17
Health care‡	38.4 (12.7-64.0)	32.9 (25.1-40.8)	43.7 (33.7-53.6)	57.6 (42.9-72.2)	41.9 (35.9-47.9)	9.4*	.025
All cases	12.0 (2.1-21.8)	15.5 (11.2-19.8)	24.6 (17.7-31.5)	39.1 (29.0-49.2)	21.7 (18.1-25.2)	23.6*	<.001

Abbreviations: CIDI, Composite International Diagnostic Interview; *DSM-IV, Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition*.
*Significantly related to symptom severity at the .05 level, 2-sided test.
†Comparison across all 4 severity categories.
‡Health care treatment is defined as making at least 1 visit for depression treatment in the past 12 months in either the specialty mental health sector or the GM sector or using psychotropic medications in the past 12 months.

dents with 12-month MDD (ie, 41.9% of the 51.6% in treatment) received adequate treatment in the year of the interview.

Because there was overlap in sectors of treatment, we also compared respondents who received SMH, but not GM, treatment (n=99), among whom 56.2% (95% CI, 43.7-68.7) received adequate treatment, with those who received GM, but not SMH, treatment (n=74), among whom a significantly lower 9.6% (95% CI, 6.0-15.5) received adequate treatment (z=6.3, P<.001).

Symptom severity is significantly related to 12-month treatment in both the SMH sector (χ^2_3=13.4, P=.004) and the GM sector (χ^2_3=8.1, P=.04), but not in either the HS sector (χ^2_3=0.2, P=.97) or the CAM sector (χ^2_3=2.6, P=.46). Symptom severity is also significantly related to patients in the SMH sector receiving adequate treatment (χ^2_3=7.9, P=.048). Even so, fewer than half the respondents with 12-month very severe MDD (39.1%) and fewer than one fourth of those with 12-month severe MDD (24.6%) received adequate 12-month HC treatment for MDD.

In addition to symptom severity, other clinical correlates of treatment and treatment adequacy include role impairment, duration, proportional days out of role during depressive episodes, and psychiatric comorbidity (TABLE 9). Sociodemographic correlates of treatment adequacy also were examined (results not shown, but available on request from R.C.K.) using the same measures and procedures as in Table 3. None of these measures was significantly related to adequate treatment after adjusting statistically for clinical variables.

COMMENT

The NCS-R MDD prevalence estimates are intermediate between the ECA and NCS estimates. Concordance between CIDI and clinical reappraisal diagnoses in the NCS-R is higher than in previous DIS and CIDI surveys.[32,45] In addition, the QIDS-SR confirms more than 99% of 12-month CIDI MDD cases. This improved accuracy is presumably because of CIDI modifications in the NCS-R. The lower CIDI prevalence estimates than those in the NCS are consistent with the fact that these modifications operated largely by reducing false-positive assessments.

The ratio of 12-month CIDI MDD prevalence to lifetime prevalence being approximately 40% is broadly consistent with ratios between one third and one half in previous epidemiologic surveys.[46,47] These ratios are consistent with both retrospective reports in cross-sectional community surveys[7,11] and prospective assessments in a small number of community[48,49] and clinical[50] samples in suggesting that MDD is an episodically chronic recurrent disorder.[51]

The NCS-R age-at-onset results are consistent with previous surveys in finding that MDD has an early onset distribution.[12,46,52] The strong MDD cohort effect in NCS-R also is consistent with previous surveys.[13,46,53] Age-related differential recall, differential willingness to disclose, or other methodologic factors could play important parts in this pattern,[54,55] although a genuine increase in the prevalence of MDD in recent cohorts might have occurred.[56,57]

Table 9. Bivariate Clinical Predictors of 12-Month Treatment and Treatment Adequacy Among Respondents With 12-Month CIDI/*DSM-IV* Major Depressive Disorder in the Weighted Part 1 NCS-R

	Treatment, Odds Ratio (95% CI)	
	Any (n = 514)*	Adequate (n = 514)*
Severity of symptoms by QIDS-SR score		
Very severe	4.4 (1.8-10.6)†	4.7 (1.5-15.0)†
Severe	3.0 (1.5-5.8)†	2.4 (0.8-7.15)
Moderate	2.2 (1.2-4.0)†	1.3 (0.5-3.8)
Mild	1.0	1.0
	χ^2_3 = 13.0†	χ^2_3 = 23.6†
Severity of role impairment by SDS score		
Very severe	7.6 (1.8-33.3)†	3.4 (0.5-21.4)
Severe	3.2 (1.0-10.0)†	1.2 (0.2-6.4)
Moderate	1.8 (0.5-6.0)	1.0 (0.2-4.7)
Mild	1.4 (0.4-5.3)	0.7 (0.1-4.1)
None	1.0	1.0
	χ^2_4 = 23.2†	χ^2_4 = 18.2†
Duration of symptoms, wk		
27-52	2.1 (1.2-3.4)†	2.0 (1.1-3.7)†
9-26	1.5 (0.9-2.5)	1.6 (0.9-3.1)
5-8	0.7 (0.4-1.3)	0.9 (0.4-2.0)
2-4	1.0	1.0
	χ^2_3 = 19.7†	χ^2_3 = 10.1†
Proportional duration of days out of role, %		
76-100	3.1 (1.4-6.6)†	3.8 (1.7-8.5)†
26-75	2.2 (1.2-4.2)†	1.7 (0.8-3.8)
1-25	1.4 (0.9-2.3)	0.9 (0.5-1.8)
0	1.0	1.0
	χ^2_3 = 15.1†	χ^2_3 = 18.2†
Comorbidity, No. of other 12-month disorders		
≥3	3.4 (2.0-6.5)†	3.7 (2.0-6.6)†
2	1.7 (1.0-2.9)†	2.1 (1.2-3.7)†
1	1.7 (1.0-2.9)†	1.8 (0.9-3.5)
0	1.0	1.0
	χ^2_3 = 20.0†	χ^2_3 = 22.6†

Abbreviations: CIDI, Composite International Diagnostic Interview; *DSM-IV, Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition*; QIDS-SR, Quick Inventory of Depressive Symptomatology Self-Report; SDS, Sheehan Disability Scale.
*Cases exclude respondents who had missing or incomplete QIDS-SR scores or who scored in the QIDS-SR noncase range.
†Significant at the .05 level, 2-sided test.

The sociodemographic correlates of prevalence are for the most part consistent with those of previous epidemiologic studies,[46,58-66] as is the finding that MDD is comorbid with anxiety and substance use disorders.[67,68] Although little epidemiologic evidence is available about comorbidity between depression and impulse control disorders among adults, significant comorbidity for MDD and impulse control disorder has been documented in clinical studies.[69,70] Comorbid impulse control disorder is often thought to be more strongly related to bipolar than to unipolar depression.[71] The NCS-R MDD impulse control disorder comorbidity could reflect broader factors or the existence of what has recently been called a "soft bipolar spectrum" in which comorbid impulse control disorder among patients with MDD represents a marker of bipolar susceptibility.[72]

The finding that comorbid anxiety disorders typically have an earlier age of onset than does MDD is consistent with previous epidemiologic research[46] as well as with prospective family studies of at-risk children.[73] The finding that the same is true for comorbid impulse control disorder has not, to our knowledge, been examined in previous epidemiologic studies of adults, although the evidence on this point is mixed in studies of children and adolescents.[74]

The results regarding MDD impairment are consistent with other evidence that MDD is a seriously impairing condition.[75] The 35.1 mean days out of role because of MDD is striking in comparison with recent results from another national survey in which mean time out of role was less than 15 days for most chronic conditions.[76]

The QIDS-SR symptom severity results speak directly to the concern that prevalence estimates in community surveys might be upwardly biased due to the inclusion of clinically insignificant cases.[29] This concern is clearly misplaced with respect to MDD, as close to 90% of 12-month CIDI cases are classified as moderate, severe, or very severe using standard HRSD symptom severity thresholds.

The 57.3% of 12-month MDD cases who received treatment in the past year, when multiplied by the estimated 12-month prevalence of MDD, represents 3.7% of the population. This is a meaningful increase over the 2.1% in the ECA in the early 1980s and the 2.7% in the NCS in 1990-1991.[14,16] The ratio of NCS-R to ECA percentages (3.7:2.1) represents a 37% increase in MDD treatment. This large increase is consistent with trend data from the National Medical Expenditures Survey for changes between 1987 and 1997.[18]

The NCS-R results are less positive with regard to treatment adequacy, implying a need for treatment quality improvement.[77] This improvement will require both a redirection of patient help-seeking to sectors where guideline-concordant care can be provided and an increase in the implementation of evidence-based treatment recommendations by health care providers.[40,41] The growing number of cost-effective depression disease management programs[24,26,78] represent feasible opportunities for promoting quality improvement. However, implementation of established performance standard[79] and report card[80] monitoring systems also are needed for quality assurance.

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Additional Information: The instruments for NCS-R are posted at: http://www.hcp.med.harvard.edu/ncs/instruments.html.

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