US prevalence and treatment of mental disorders: 1990–2003

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Abstract

Background—Although the 1990s saw enormous change in the US mental health care system, little is known about changes in prevalence or treatment of mental disorders.

Methods—We examined US trends in prevalence and treatment of mental health disorders for people age 18–54 over the past decade. Data were collected from face-to-face household interviews in 1990–2 (National Comorbidity Survey (NCS), n = 5388) and 2001–3 (National Comorbidity Survey Replication (NCS-R), n = 4319). Anxiety, mood, and substance use disorders in the 12 months before interview were diagnosed using the American Psychiatric Association's Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV). Treatment for emotional problems was categorized by sector: psychiatry (PSY), other mental health (OMH), general medical (GM), human services (HS), and complementary-alternative medical (CAM).

Results—Disorder prevalence did not change over time (29.4% in 1990–2 and 30.5% in 2001–3, p = 0.52), but treatment increased. Of patients with a disorder, 20.3% received treatment in 1990–2 and 32.9% in 2001–3 (p < .001). Overall, 12.2% of the US population age 18–54 received treatment for emotional problems in 1990–2 and 20.1% in 2001–3 (p < .001). Only about half of people who received treatment met diagnostic criteria for a disorder. Significant treatment increases were limited to GM (159.1% increase), PSY (116.8%), and OMH (59.0%) and were independent of disorder severity and socio-demographics.

Conclusions—Despite increased treatment, most mental disorders remain untreated. Continued efforts are needed to obtain treatment effectiveness data and to increase use of effective treatments.

The Surgeon General's report[1] and the President's New Freedom Commission[2] both called for expanding mental health treatment. Planning such expansion requires accurate prevalence and treatment data. In the 1980s, the Epidemiologic Catchment Area (ECA) study found that 29.4% of adults met criteria for a mental disorder at some time in the 12 months before interview (12-month disorder) using the diagnostic criteria of the American Psychiatric Association's Diagnostic and Statistical Manual of Mental Disorders Version III (DSM-III). One-fifth of patients with 12-month disorders received treatment. Half of

patients who received treatment did not meet criteria for any 12-month ECA/DSM-III disorder.3 A decade later, the National Comorbidity Survey (NCS) found that 30.5% of people age 15–54 met criteria for a 12-month DSM-III-R disorder. One-fourth of these cases received treatment. Roughly half of patients who were treated did not meet criteria for any 12-month NCS/DSM-III-R disorder.4 These results are no longer valid due to changes in mental health care delivery. The Substance Abuse and Mental Health Services Administration (SAMHSA) found that annual specialty mental health visits increased 50% between 1992 and 2000.5 The National Ambulatory Medical Care Survey (NAMCS) found that the number of people receiving healthcare treatment for depression tripled between 1987 and 1997.6 The Robert Wood Johnson Foundation Community Tracking Survey (CTS) found that people with serious mental illness in specialty care increased 20% between 1997–8 and 2000–1.7 The aim of the current report is to present more comprehensive national trend data on prevalence and treatment of 12-month mental disorders from the 1990–2 NCS4 and the 2001–3 NCS Replication (NCS-R).8 Unlike the SAMHSA and NAMCS data, we examine treatment inside and outside the healthcare system. Unlike the CTS data, which contained only rough screening measures of prevalence, we analyze detailed diagnostic assessments.

METHODS

Samples

The NCS and NCS-R are nationally representative face-to-face household surveys of respondents ages 15–54 (NCS) or 18+ (NCS-R). Response rates and total number of completed interviews were 82.4% and 8098 (NCS) and 70.9% and 9282 (NCS-R).4, 8 All respondents received a Part I interview about mental disorders. All respondents with a Part I diagnosis and a sub-sample of others were administered a Part II assessment of risk factors, treatment, and consequences of mental disorders. Weights adjusted for biases due to differential non-response and probability of selection and residual discrepancies with Census demographic-geographic distributions. More details about samples and weights are presented elsewhere.4, 8 The data presented in this report are from Part II in the overlapping age range of the two samples (18–54; NCS n = 5388; NCS-R n = 4319).

Recruitment and consent

Introductory explanatory materials were mailed to sample households followed by interviewer visits to answer questions, obtain informed consent, and schedule interviews. Respondents received $25 (NCS) or $50 (NCS-R) incentives. A sub-sample of non-respondents received higher incentives (NCS $50; NCS-R $100) to complete a screening interview. The Human Subjects Committees of the University of Michigan and Harvard Medical School approved these procedures.

Diagnostic assessment

Diagnosis was based on the WHO Composite International Diagnostic Interview (CIDI) for DSM-III-R (NCS)9 or DSM-IV (NCS-R).10 Diagnoses included anxiety disorders (panic disorder, generalized anxiety disorder, phobias, post-traumatic stress disorder), mood disorders (major depression, dysthymia, bipolar disorder), and substance disorders (alcohol and drug abuse and dependence). Clinical reappraisal interviews documented good concordance and conservative prevalence estimates compared with blinded clinician diagnoses.11, 12 Twelve-month disorders were considered present if they occurred at any time in the 12 months before interview, even if they subsequently remitted with treatment.

Because DSM-III-R and DSM-IV criteria differ too greatly to justify direct comparisons of prevalence, trend analysis was based on a re-calibration of both surveys to a common

summary severity rating developed in the NCS-R and then imputed to the NCS. This severity rating is described in detail elsewhere.[13] In brief, serious disorder was defined as either: meeting 12-month criteria for schizophrenia, any other non-affective psychosis, bipolar I or II disorder, or substance dependence with a physiological dependence syndrome; making a suicide attempt or having a suicide plan in conjunction with any NCS-R/DSM-IV disorder; reporting two+ areas of role functioning with self-described "severe" role impairment due to a mental disorder; or reporting functional impairment associated with a mental disorder at a level consistent with a Global Assessment of Functioning (GAF)[14] score of 50 or less. Respondents whose disorder did not meet criteria for being serious were classified moderate or mild based on responses to the disorder-specific Sheehan Disability Scales.[15]

The imputation of severity scores to NCS cases was based on logistic regression equations estimated in the NCS-R that used symptom measures available in both surveys to predict: (i) serious disorder vs. all other respondents; (ii) serious-moderate disorder vs. all other respondents; and (iii) any disorder vs. no disorder. Prediction accuracy was good in all three equations (AUC = .7 for serious, .8 for serious-moderate, and .8 for any disorder). The coefficients in these equations were used to generate predicted probabilities for each NCS and NCS-R respondent for each nested outcome, which, in turn, were used to impute discrete scores on the severity scale.

Treatment

All Part II respondents in both surveys were asked questions about whether they sought treatment for emotional problems in the past 12 months from a list of providers and settings. Responses were classified by sector: psychiatrist (PSY), other mental health specialist (OMH), general medical (GM), human services (HS), complementary-alternative medical (CAM).

Analysis methods

Trends were assessed with z tests. Variation in trends among socio-demographic sub-samples was assessed with pooled logistic regression analysis. Predictors included time (NCS-R = 1, NCS = 0), socio-demographics, and interactions between time and socio-demographics. Trends in treatment were also assessed as a function of disorder severity. Standard errors were obtained using the Taylor series linearization method.[16] Adjustment for imprecision in imputed disorder severity scores was made using the multiple imputation method.[17] Ten independent pseudo-samples were drawn from the original NCS-R sample for this purpose, with predicted probabilities of severity converted into dichotomous case classifications based on probability distributions. Uncertainty in classification was reflected in variation across the ten imputations and was included in standard errors by defining the estimated variance of each coefficient as the sum of the average design-adjusted within-replicate coefficient variance estimates and the variance of the coefficients across replicates. Logistic regression coefficients and standard errors were exponentiated to create odds-ratios (OR) with 95% confidence intervals (CI). Significance of predictor sets was evaluated with Wald χ^2 tests using design-adjusted multiply imputed coefficient variance-covariance matrices.

RESULTS

Trends in prevalence

Estimated 12-month prevalence of any DSM-IV disorder did not differ significantly across surveys (29.4% in 1990–2, 30.5% in 2001–3, p = .52). There was no significant change in prevalence of serious (5.3% vs. 6.3%, p = .27), moderate (12.3% vs. 13.5%, p = .30), or

mild (11.8% vs. 10.8%, p = .37) disorders and no statistically significant interactions between time and socio-demographics in predicting prevalence. (Results not reported, but available on request.)

Trends in treatment

Prevalence of 12-month treatment for emotional problems was 12.2% in 1990–2 and 20.1% in 2001–3 (a Risk Ratio (RR) of 1.7, p < .001). (Table 1) The association between severity and treatment was positive and significant (p < .001), although substantively modest in the pooled data (with a Pearson's Contingency Coefficient (C), a poltchotomous extension of the phi coefficient, of .14), and did not differ significantly over time. Only a minority of respondents with serious disorders received treatment (24.3% in 1990–2; 40.5% in 2001–3). Approximately half of patients who received treatment had none of the disorders considered here. (Table 1)

Trends in sector-specific treatment (PSY, OMH, GM, HS, CAM) were similar to overall trends in two respects. (Table 1) First, severity was significantly related to treatment in each sector (p < .001). Second, these associations did not change over time (p = .399–.975). A significant difference in treatment trends was found across sectors (p < .001). GM treatment increased from 3.9% to 10.0% (RR = 2.6, p < .001), PSY from 2.4% to 5.2% (RR = 2.2, p < .001), OMH from 5.3% to 8.4% (RR = 1.6, p < .001), and HS from 2.6% to 3.5% (RR = 1.3, p = .05). CAM decreased from 3.3% to 2.7% (RR = 0.8, p = .10).

A distributional shift in treatment occurred because of these within-sector differences. GM changed from 31.5% to 49.6% (p < .001), PSY from 19.6% to 25.8% (p = .007), OMH from 43.5% to 41.9% (p = .59), HS from 21.5% to 17.2% (p = .11), and CAM from 26.8% to 13.2% (p < .001). These distributional changes did not vary by severity (p = .89–.99).

Socio-demographic correlates of treatment

We examined pooled associations between seven socio-demographic variables with the six treatment measures. (Table 2) Ten of these 42 associations were significant using .001 tests as an approximate control for Type-I error. Predictors of any treatment included being older than 24, female, Non-Hispanic White, and non-married. Predictors of sector-specific treatment included age (related positively to GM and negatively to OMH), female (related positively to GM and negatively to CAM), marital status (non-married more likely than the married to receive OMH), and education (related negatively to GM). These associations are all modest in magnitude (Pearson C = .04–.07). Interactions with time and severity were all non-significant using .001-level tests. (Table 2)

DISCUSSION

Two noteworthy limitations of this study are that severity was assessed indirectly in 1990–2 using imputation and treatment adequacy was not assessed. The strong relationship of imputed values to direct measures of severity in NCS-R and use of the multiple imputation method to adjust for the increase in error variance when computing significance tests minimize concerns about the first limitation. The second limitation is more concerning because research shows that many mental patients receive inadequate treatment.[18] Adequacy of treatment could not be studied because too little information about processes of care was included in the earlier survey.

With these limitations in mind, the study documented five important results. First, no change occurred in prevalence or severity of mental disorders between 1990–2 and 2001–3. Two explanations consistent with this result are that prevalence would have been higher in the early 2000's than the early 1990's were it not for increased treatment; and that increased

treatment was ineffective in causing a decrease in disorders. Consistent with the first possibility, the economic recession of the early 2000's began shortly before and deepened throughout the NCS-R field period, while the 9/11 attacks occurred in the middle of the field period. Mental disorders might have increased in the absence of increased treatment. However, more evidence is consistent with the second explanation. Studies show that most treatment for mental disorders falls below minimum quality standards.[18] In addition, this treatment is typically of short duration, which means it would influence episode duration more than 12-month prevalence. Finally, increased treatment was provided largely in the GM sector to patients without NCS-R/DSM-IV disorders. Controlled treatment trials find no evidence that pharmacotherapy significantly improves such mild cases, making it unlikely that it could prevent a significant secular increase in disorder prevalence.

Second, a substantial increase occurred between 1990–2 and 2001–3 in the proportion of the population treated for emotional problems, even though the majority of people with disorders still received no treatment. The increased treatment could have been due to: aggressive direct-to-consumer marketing of new psychotropic medications;[19] development of new community programs to promote awareness, screening, and help-seeking for mental disorders;[20] expansion of primary care, managed care, and behavioral "carve-out" systems of mental health services;[21] and new legislation and policies to reduce barriers to service use.[22] Increased access presumably played an independent role.[23] Insurance coverage expanded throughout the decade, while consumer cost sharing declined.

Third, increased treatment varied across sectors, leading to a composition shift in treatment, the most notable shift being a 150% increase in treatment in the GM sector. Despite hope that mental disorders would be treated more efficiently because of this shift, data show that many patients in GM treatment for emotional problems fail to complete the clinical assessment, delivery of treatment, and appropriate ongoing monitoring consistent with accepted standards of care.[18] In addition, a high proportion of patients continue to receive treatments of uncertain benefit in the HS and CAM sectors.

Fourth, the increase in treatment was unrelated to socio-demographic correlates. As a result, increased treatment did not reduce socio-demographic inequalities found in the baseline NCS.[24] Indeed, these inequalities increased in absolute terms. For example, although Non-Hispanic Blacks were only 50% as likely to receive PSY treatment as Non-Hispanic Whites with the same disorder severity in both surveys, the fact that PSY treatment increased by more than 100% means that this consistent difference resulted in the absolute Black-White treatment gap increasing by more than 100%.

Fifth, although a small positive association was found in both surveys between severity and treatment, severity did not interact with time in predicting treatment. This means that the proportional increase in treatment was the same for all levels of severity. The positive association between severity and treatment has previously been interpreted as evidence of rationality in allocation of treatment resources.[24] However, the fact that roughly half of patients do not meet criteria for any DSM disorder assessed in surveys has led to controversy regarding the relationship between severity and treatment need.[25, 26] Some commentators argue that treatment resources should be focused on serious cases.[27] Others argue that cost-effectiveness might be as high treating mild cases[28] or treating sub-threshold syndromes to prevent onset of future serious disorders.[29] No comparative cost-effectiveness data exist to adjudicate between these contending views.

These results suggest two directions for future research and policy analysis. First, as most people with a mental disorder receive no treatment, efforts are needed to increase access and demand for treatment. The persistence of low treatment among traditionally underserved

groups calls for special initiatives.[30] The Surgeon General's report on under-treatment among racial-ethnic minorities[1] and the NIMH initiative on under-treatment among men[31] may provide useful models and should be evaluated. Programs to expand treatment resources in targeted locations could also be of value,[32] as could initiatives such as legislation to encourage mental health service use among vulnerable elderly patients.[22] Second, efforts are needed to evaluate the effectiveness of widely used treatments for which no effectiveness data exist and to increase use of evidence-based treatments. The expansion of disease management programs, treatment quality assurance programs, and "report cards" are important steps in this direction. Substantial barriers continue to exist, though, including competing clinical demands and distorted treatment incentives.[33, 34] Initiatives aimed at overcoming these barriers are underway.[35, 36] Future trend surveys need to include data on treatment processes, like those in the NCS-R, to allow changes in treatment quality to be tracked.

Acknowledgments

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Table 1

Twelve-month treatment of DSM-IV disorders by severity and sector among NCS (n=5388) and NCS-R (n=4319) respondents ages 18–54

	Any[1]		PSY[1]		OMH[1]		GM[1]		HS[1]		CAM[1]	
	%	(se)	%	(se)	%	(se)	%	(se)	%	(se)	%	(se)
I. NCS (1990–92)[2]												
Serious	24.3	(3.8)	7.3	(2.2)	11.4	(2.5)	8.2	(3.0)	4.5	(1.9)	8.4	(1.9)
Moderate	25.4	(2.4)	5.8	(1.2)	13.6	(1.6)	8.6	(1.4)	5.5	(1.1)	7.1	(1.2)
Mild	13.3	(2.4)	2.5	(1.2)	4.9	(1.3)	4.3	(1.4)	3.0	(1.2)	3.0	(0.8)
Any	20.3	(1.5)	4.8	(0.8)	9.7	(1.0)	6.8	(1.0)	4.3	(0.7)	5.7	(0.7)
None	8.8	(0.7)	1.4	(0.3)	3.5	(0.4)	2.6	(0.4)	1.9	(0.3)	2.3	(0.3)
Total	12.2	(0.6)	2.4	(0.3)	5.3	(0.3)	3.9	(0.4)	2.6	(0.3)	3.3	(0.3)
II. NCS-R (2001–03)[2]												
	%	(se)	%	(se)	%	(se)	%	(se)	%	(se)	%	(se)
Serious	40.5	(4.7)	14.4	(3.3)	19.4	(3.5)	22.1	(3.5)	6.5	(1.6)	6.2	(1.5)
Moderate	37.2	(3.0)	13.0	(1.6)	15.8	(1.8)	19.5	(2.4)	5.5	(1.2)	4.6	(1.0)
Mild	23.0	(3.8)	5.1	(1.3)	9.0	(2.2)	11.8	(2.9)	3.9	(1.5)	2.9	(0.9)
Any	32.9	(2.0)	10.5	(1.0)	14.1	(1.3)	17.3	(1.3)	5.1	(0.8)	4.3	(0.6)
None	14.5	(0.9)	2.9	(0.4)	5.9	(0.6)	6.8	(0.6)	2.7	(0.4)	1.9	(0.3)
Total	20.1	(0.8)	5.2	(0.3)	8.4	(0.5)	10.0	(0.5)	3.5	(0.3)	2.7	(0.3)
III. NCS-R:NCS[3]												
	RR	(se)	RR	(se)	RR	(se)	RR	(se)	RR	(se)	RR	(se)
Serious	1.68	(0.35)	2.01	(0.84)	1.72	(0.49)	2.91	(1.33)	1.53	(0.70)	0.74	(0.25)
Moderate	1.47*	(0.19)	2.27*	(0.57)	1.17	(0.19)	2.29*	(0.46)	1.01	(0.29)	0.65	(0.17)
Mild	1.74*	(0.35)	2.17	(1.14)	1.85	(0.57)	2.82	(1.04)	1.34	(0.64)	0.97	(0.38)
Any	1.62*	(0.15)	2.21*	(0.40)	1.46*	(0.18)	2.58*	(0.41)	1.19	(0.25)	0.76	(0.14)
None	1.65*	(0.16)	2.05*	(0.50)	1.71*	(0.26)	2.57*	(0.46)	1.42	(0.32)	0.86	(0.16)
Total	1.65*	(0.10)	2.17*	(0.27)	1.59*	(0.15)	2.59*	(0.29)	1.32	(0.19)	0.81	(0.10)
IV. Statistical Significance[4]												
	χ^2	(p)	χ^2	(p)	χ^2	(p)	χ^2	(p)	χ^2	(p)	χ^2	(p)
Severity (S)	194.6	(.000)	112.2	(.000)	118.1	(.000)	105.3	(.000)	23.0	(.000)	82.9	(.000)

	Any[1]		PSY[1]		OMH[1]		GM[1]		HS[1]		CAM[1]	
Time (T)	56.8	(.000)	34.5	(.000)	22.7	(.000)	72.4	(.000)	3.3	(.069)	3.3	(.067)
T × S	0.5	(.928)	0.2	(.975)	3.0	(.399)	0.3	(.958)	0.9	(.825)	1.2	(.759)

*
Significant at the .05 level, two-sided test.

[1] Any = Any treatment; PSY = Psychiatrist; OMH = Other mental health specialist; GM = General medical; HS = Human services; CAM = Complementary-alternative medicine

[2] % = Proportion of respondents in the total sample who received either any treatment or treatment in the treatment sector indicated in the column heading. se = Design-based multiply imputed standard error of the % estimate.

[3] RR = Risk Ratio, the proportional increase in prevalence in NCS-R compared to NCS. For example, a RR of 1.5 corresponds to the NCS-R prevalence being 50% higher than the NCS prevalence. Note that RR does not always equal the ratio of the % estimates in Parts I and II. This is because the Multiple Imputation method calculates % and RR as means of these estimates in pseudo-samples. The mean of a within-pseudo-sample ratio does not necessarily equal the ratio of the within-pseudo-sample means of the % estimates.

[4] The significance tests for severity (S) evaluate the significance of differences in treatment proportions across the four categories of the severity variable pooled across the two surveys. Each severity χ^2 test has 3 degrees of freedom (serious, moderate and mild vs. none). The significance tests for time (T) evaluates the significance of differences in treatment proportions in the two surveys controlling for differences in severity. Each time χ^2 test has 1 degree of freedom (1990–2 vs. 2001–3). The significance tests for interactions between time and severity (T × S) evaluate the significance of differential change across the two surveys depending on severity. Each T × S χ^2 test has 3 degrees of freedom.

Table 2

Socio-demographic predictors of receiving any 12-month treatment in the total sample and as a proportion of all treatment in the five treatment sectors, controlling for disorder-severity and time, among combined NCS and NCS-R respondents ages 18–54 (n=9707)

	Any[1]		PSY[1]		OMH[1]		GM[1]		HS[1]		CAM[1]	
	OR	(95% CI)	OR	(95% CI)	OR	(95% CI)	OR	(95% CI)	OR	(95% CI)	OR	(95% CI)
Age												
18–24	0.6	(0.5–0.8)	0.6	(0.4–1.0)	2.6	(1.7–3.9)	0.4	(0.3–0.6)	2.1	(1.2–3.8)	0.9	(0.6–1.5)
25–34	0.9	(0.7–1.1)	0.6	(0.4–0.8)	1.9	(1.3–2.6)	0.6	(0.4–0.8)	1.5	(0.9–2.6)	1.2	(0.8–1.7)
35–44	1.1	(0.9–1.4)	0.7	(0.5–0.9)	1.7	(1.3–2.3)	0.8	(0.6–1.1)	1.3	(0.8–2.2)	1.1	(0.8–1.5)
45–54	1.0	--	1.0	--	1.0	--	1.0	--	1.0	--	1.0	--
		p < .001		p = .007		p < .001		p < .001		p = .07		p = .70
Gender												
Female	1.7	(1.4–1.9)	0.7	(0.6–0.9)	1.0	(0.8–1.2)	1.8	(1.4–2.3)	1.1	(0.8–1.5)	0.7	(0.5–0.8)
Male	1.0	--	1.0	--	1.0	--	1.0	--	1.0	--	1.0	--
		p < .001		p = .01		p = .71		p < .001		p = .69		p < .001
Race-ethnicity												
Hispanic	0.6	(0.5–0.9)	0.5	(0.3–0.8)	1.0	(0.6–1.6)	0.8	(0.5–1.2)	1.5	(0.8–2.7)	0.8	(0.4–1.4)
Non-Hispanic Black	0.5	(0.4–0.7)	0.9	(0.6–1.5)	0.7	(0.5–1.1)	0.5	(0.5–1.4)	1.9	(1.2–3.0)	0.6	(0.4–1.0)
Other	0.5	(0.4–0.7)	0.9	(0.5–1.7)	1.0	(0.4–2.5)	0.8	(0.2–2.6)	0.7	(0.3–1.9)	0.7	(0.3–1.5)
Non-Hispanic White	1.0	--	1.0	--	1.0	--	1.0	--	1.0	--	1.0	--
		p < .001		p = .02		p = .47		p = .68		p = .01		p = .22
Marital Status												
Separated/Widowed/Divorced	1.8	(1.5–2.2)	1.0	(0.7–1.3)	1.8	(1.4–2.5)	0.6	(0.4–0.8)	1.3	(0.8–2.1)	1.5	(1.0–2.3)
Never Married	1.3	(1.1–1.6)	1.2	(0.8–1.6)	1.3	(1.0–1.8)	0.8	(0.5–1.1)	1.0	(0.6–1.6)	0.9	(0.6–1.4)
Married	1.0	--	1.0	--	1.0	--	1.0	--	1.0	--	1.0	--
		p < .001		p = .59		p < .001		p = .003		p = .39		p = .05
Education												
0–11	1.1	(0.8–1.5)	0.9	(0.6–1.3)	0.6	(0.4–0.9)	2.6	(1.7–4.1)	0.4	(0.2–0.8)	1.1	(0.7–1.8)
12	1.0	(0.8–1.3)	0.8	(0.6–1.2)	0.6	(0.4–0.9)	2.2	(1.5–3.2)	0.8	(0.5–1.2)	1.0	(0.7–1.5)
13–15	1.2	(0.9–1.4)	0.7	(0.5–0.9)	0.8	(0.6–1.0)	2.1	(1.4–3.1)	0.8	(0.5–1.2)	0.8	(0.6–1.2)
16+	1.0	--	1.0	--	1.0	--	1.0	--	1.0	--	1.0	--

	Any[1] OR	(95% CI)	PSY[1] OR	(95% CI)	OMH[1] OR	(95% CI)	GM[1] OR	(95% CI)	HS[1] OR	(95% CI)	CAM[1] OR	(95% CI)
Income	p = .32		p = .04		p = .02		p < .001		p = .03		p = .48	
Low	1.1	(0.8–1.4)	1.2	(0.8–1.9)	1.0	(0.7–1.6)	0.9	(0.5–1.4)	2.1	(1.1–3.8)	1.4	(0.9–2.2)
Low-average	0.9	(0.7–1.1)	0.9	(0.6–1.4)	1.0	(0.7–1.4)	1.2	(0.8–1.8)	1.9	(1.1–3.2)	1.6	(1.1–2.5)
High-average	0.9	(0.7–1.1)	0.8	(0.5–1.2)	0.9	(0.7–1.3)	1.1	(0.8–1.6)	1.6	(1.0–2.7)	1.5	(1.0–2.1)
High	1.0	--	1.0	--	1.0	--	1.0	--	1.0	--	1.0	--
	p = .25		p = .07		p = .94		p = .21		p = .10		p = .08	
Urbanicity												
Large MSA-Central City	1.6	(0.9–2.6)	0.8	(0.3–2.1)	3.2	(1.3–7.6)	0.7	(0.3–1.4)	0.3	(0.1–0.7)	2.9	(1.0–8.4)
Large MSA-Suburbs	1.5	(0.9–2.4)	0.7	(0.2–2.0)	3.0	(1.3–7.2)	0.7	(0.4–1.4)	0.5	(0.2–1.1)	2.6	(0.9–7.3)
Small MSA-Central City	1.5	(0.9–2.4)	0.5	(0.2–1.4)	4.0	(1.7–9.4)	1.0	(0.5–1.9)	0.4	(0.2–0.9)	1.9	(0.7–5.6)
Small MSA-Suburbs	1.4	(0.8–2.4)	0.5	(0.2–1.4)	3.2	(1.4–7.4)	1.1	(0.6–2.0)	0.5	(0.2–1.1)	1.6	(0.6–4.4)
Adjacent	1.2	(0.8–1.9)	0.6	(0.2–1.6)	3.6	(1.5–8.6)	1.1	(0.5–1.7)	0.5	(0.2–1.1)	2.0	(0.8–5.2)
Rural	1.0	--	1.0	--	1.0	--	1.0	--	1.0	--	1.0	--
	p = .35		p = .23		p = .06		p = .36		p = .10		p = .006	

*
Significant at the .05 level, two-sided test.

[1] Any = any treatment; PSY = Psychiatrist; OMH = Other mental health specialist; GM = General medical; HS = Human services; CAM = Complementary-alternative medicine

[2] Defined as a multiple of the federal poverty line (1990 in the NCS and 2001 in the NCS-R) for a family having the composition of the respondent's family: Low= income:poverty (I:P) ratio less than 1.5:1; Low-average= I:P ratio between 1.5:1 and less than 3:1; High-average= I:P ratio between 3:1 and less than 6:1; High= I:P ratio of 6:1 or more.

[3] Urbanicity was coded according to the 1990 (NCS) and 2000 (NCS-R) census definitions to distinguish between large (at least 2 million residents) and smaller Metropolitan Statistical Areas (MSAs) and to distinguish among central cities and suburbs of such areas. Adjacent areas are areas outside the suburban belt, but within 50 miles of the central business district of a central city of an MSA. Rural areas are areas more than 50 miles from the central business district of a central city.