**Trends in Psychological Distress, Depressive Episodes and Mental Health
Treatment-Seeking in the United States: 2001-2012**

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Summary:

Objective: To examine recent trends in psychological distress, depressive symptoms and mental health treatment seeking in the US adult general population.

Methods: Using data from three large general annual population surveys—the National Health Interview Survey (NHIS), Behavioral Risk Factor Surveillance System (BRFSS), and National Survey on Drug Use and Health (NSDUH)—we examined temporal trends in non-specific psychological distress, depressive symptoms and mental health treatment seeking over the 2001-2012 period.

Results: Prevalence of past-month significant psychological distress and past-year depressive symptoms changed little over time. However, the proportion of BRFSS participants reporting poor mental health increased over time--8.7% of the 2011-2012 participants compared to 6.6% of the 2001-2002 participants reported poor mental health for 15 days or longer in the past month and 5.7% vs. 4.6%, respectively, reported poor mental health on all days. A larger percentage of participants in the later period also reported receiving mental health treatments.

Discussion: Despite increases in mental health treatment seeking in the US in the first decade of this century, there is no evidence of a concomitant decrease in prevalence of psychological distress or depression.

The use of mental health services, in general, and psychiatric medications, in particular, dramatically increased in the United States in 1990s.¹⁻³ Yet there is no evidence that the prevalence of mental disorders declined over this same period.^{1,4} Indeed, one study based on two large national surveys, the National Longitudinal Alcohol Epidemiologic Survey and the National Epidemiologic Survey on Alcohol and Related Conditions, found a more than two-fold increase in the prevalence of major depressive episodes between 1991–1992 and 2001–2002.⁵ Other studies based on the National Comorbidity Survey of 1991-1992 and National Comorbidity Survey-Replication of 2001-2003 found essentially similar prevalence of 12-month depression and other common mental disorders in this period.^{1,4} Nevertheless, these authors and others have noted significant increases in mental health treatment seeking,^{1,6,7} and especially psychiatric medications in this period.² Similar results have been reported from other industrialized countries.⁸⁻¹³ These trends are indeed puzzling and raise questions about the effectiveness of mental health treatments and the public health impact of campaigns aimed at increasing treatment seeking.⁹

Much of the past research on trends in psychiatric disorder, distress and mental health treatment seeking in the US has explored these trends in the 1990s. Less is known about trends in more recent years. There is some evidence that the increasing trend in antidepressant medication use in the US may have slowed down and any increase in prevalence of use in the first decade of the century may be attributed to an increase in long-term use of these medications.¹⁴ There is also some evidence of increase in prevalence of self-reported mental health disability in more recent years.¹⁵ However, trends in mental health service use in general and psychological distress need to be further examined.

In this study, we used data from multiple nationally representative population surveys to examine trends in psychological distress and depressive symptoms in the US adult population between 2001 and 2012. We further assessed trends in treatment seeking and perceived unmet need for mental health treatment in this period. This study builds on past research by extending

the years covered to the first decade of the 21st century. The study also improves upon past research by using data from large annual surveys that employed the same measures each year.

METHODS

Samples

Data were drawn from 3 annual national surveys: the National Health Interview Survey (NHIS), the Behavioral Risk Factor Surveillance System (BRFSS), and the National Survey on Drug Use and Health (NSDUH). NHIS is an annual, cross-sectional survey of the non-institutionalized US population conducted by the National Center for Health Statistics.¹⁶ The survey is comprised of a family interview with a knowledgeable adult informant regarding each family member. In addition, a randomly selected adult member was interviewed. The data for this report come from these adult interviews. The final response rates, calculated by multiplying the response rates for family interview and random adult interview, ranged from 61% to 79% over the years, with a median of 71%. A total of 349,852 participants aged 18+ years old participated in the NHIS 2001 to 2012 and comprised the sample for this study.

The BRFSS is a nationally representative phone survey of the U.S. population. The survey incorporates a core module, with questions asked of all participants, and additional specialized modules used in various states in different years. (A more detailed description of BRFSS is available at: <http://www.cdc.gov/brfss/>). In this study we used data from the 50 states and the District of Columbia for years 2001 to 2012. The response rates to the surveys ranged from 45% to 58%, with a median of 52%. A total of 4,452,059 BRFSS participants aged 18+ were included in this study.

NSDUH is a representative cross-sectional annual survey of US adults in the 50 states and the District of Columbia sponsored by Substance Abuse and Mental Health Services Administration (SAMHSA). The target population was comprised of residents of households, non-institutional group quarters, and civilians living on military bases who were 12 years old or

older. All interviews were conducted in person, using computer-assisted interviewing methods (response rate range=63% to 79%, Median=75%). A total of 452,961 NSDUH participants aged 18+ were included in this study.

Assessments

Psychological distress in NHIS was assessed by K6, a standardized screening instrument developed specifically for use in general population surveys.^{17, 18} K6 rating is the summary score of 6 items, assessing nonspecific psychological distress over the past 30 days. Items are rated on a Likert scale from “none” (= 0) to “all the time” (= 4); with a summary score range of 0-24. In a clinical reappraisal study, K6 was shown to have acceptable psychometric properties to detect conditions meeting the criteria of one of the *DSM-IV*¹⁹ disorders as ascertained by the Structured Clinical Interview for *DSM-IV* (SCID)²⁰ and a score of 60 or less on the Global Assessment of Functioning scale (GAF).¹⁸ On the basis of the ROC curve analysis,²¹ a score of ≥ 13 on K6 was selected as the optimal cutpoint to identify psychological distress associated with serious mental illness. This cutpoint is associated with a sensitivity of 0.36, a specificity of 0.92, and a total classification accuracy of 0.92 and equalizes the number of false-positives and false negatives in population samples.¹⁸ More recently, Prochaska and colleagues identified a cut point of ≥ 6 for “moderate” psychological distress based on treatment seeking patterns in a population sample.²² Based on these cutpoints, two categories of psychological distress were identified for this study: *moderate psychological distress* (K6 score ≥ 6 and < 13) and, *severe psychological distress* (K6 ≥ 13).

Major depressive episodes in the past year were assessed in NSDUH using a structured interview based on *DSM-IV* criteria.¹⁹ Questions were adapted from the depression section of the National Comorbidity Survey Replication⁴ and administered by using computer-assisted interviewing methods. In addition, the total number of lifetime depressive episodes and the age of onset of the first episode were assessed. Assessment of major depressive episodes started

in NSDUH 2004. However, the structured interview was conducted with only half of the 2004 sample. Therefore, we limited the analyses for trend to the year period of 2005-2012 in which assessment was conducted in the full annual sample each year.

Number of days with poor mental health was assessed in BRFSS by asking the participants: “Now thinking about your mental health, which includes stress, depression, and problems with emotions, for how many days during the past 30 days was your mental health not good?” Responses were categorized into more than half of the time (≥ 15 days) and all days (30 days).

Use of psychiatric medications was ascertained in NSDUH based on one question asking if the participant had taken medication that were prescribed “to treat a mental or emotional condition” in the past year.

Contact with mental health professionals in the past year was assessed in NHIS by asking the participants if during the past 12 months they had seen or talked to a mental health professional such as a psychiatrist, psychologist, psychiatric nurse, or clinical social worker.

Any mental health treatment in the past year was assessed in NSDUH based on questions about receipt of outpatient mental health treatment/counseling, inpatient treatment and taking prescription medication. The individual was rated as having received mental health treatment if the person responded positively to questions about either form of treatment.

Perceived unmet need for care was defined by a positive response to the following question in NSDUH: “During the past 12 months, was there any time when you needed mental health treatment or counseling for yourself but didn't get it?” The question was asked from all participants, irrespective of history of service use in the past year.

In addition, sex, age and race/ethnicity (non-Hispanic White, non-Hispanic Black, Hispanic, other) were assessed in all three surveys and included in the regression analyses.

Analytic approach

Trends over the 2001-2012 period were assessed using binary logistic regression models. Survey year was the independent variable of interest in these analyses and was recoded to range from 0 (for 2001-2002) to 1 (for 2011-2012). Thus, the odds ratios associated with the variable of survey year reflect the change in odds over the entire 2001-2012 period. Survey years were combined in 2-year bins to increase stability of estimates. For assessment of trends in major depressive episodes, only years 2005-2012 were included in the analyses and the survey year variable was accordingly coded to range from 0 to 1 for this time period. Both unadjusted and adjusted regression analyses were conducted for each outcome. The adjusted models controlled for sex, age and race/ethnicity to remove the potential effect of variations in these characteristics of the samples over time.

Analyses were weighted by survey weights which make the samples representative of the target population. All percentages reported are weighted by these survey weights. Analyses further adjusted for survey design elements using Taylor linearization method as implemented in the STATA 13 (StataCorp LP, College Station, TX) complex survey commands. Due to the large sample sizes, conservative 99% confidence intervals and $p < .01$ were used.

RESULTS

Psychological distress

A total of 54,985 (15.1%) of the 349,852 NHIS participants with K6 ratings scored in the ≥ 5 to < 13 range indicating *moderate psychological distress*. Another 12,207 (3.1%) scored in the ≥ 13 range indicating *severe psychological distress*. In unadjusted logistic regression analyses, no significant trends were observed over time (odds ratio [OR]=1.02, 99% CI=.97-1.07, $p=.253$ for moderate distress and OR=1.05, 99% CI=.96-1.15, $p=.161$ for severe distress). The results were similar in adjusted models controlling for sex, age and race/ethnicity (Table 1).

Major depressive episodes

A total of 25,156 (7.0%) of the 301,577 NSDUH 2005-2012 participants met the criteria for a major depressive episode in the past year. The prevalence did not appreciably change over the 8 years in unadjusted analyses (OR= .98, 99% CI=.95-1.00, $p=.072$) or adjusted analyses (Table 1).

Number of days with poor mental health

Of the 4,229,051 BRFSS 2001-2012, a total of 323,061 (7.5%) reported poor mental health for at least half of the days in the past month and 226,991 (5.1%) reported poor mental health for the whole 30 day period. In unadjusted analyses, the odds of having ≥ 15 days of poor mental health increased by 24% over the 12-year period (OR= 1.24, 99% CI=1.20-1.28, $p<.001$) and the odds of having 30 days of poor mental health increased by 4% (OR= 1.04, 99% CI=1.02-1.05, $p<.001$) (the model for 30 days of poor mental health did not converge using survey weights and design elements; the model was estimated without these elements). The results were similar in models adjusted for age, sex and race/ethnicity (Table 1). The average number of days with poor mental health increased from 3.4 days in 2001-2002 to 3.9 days in 2011-2012 and the incidence of days with poor mental health increased modestly by about 15% as examined using a negative binomial regression model (incidence rate ratio= 1.15, 99% CI=1.13-1.17, $p<.001$) (data not shown).

Taking prescription medication

Of the 452,051 NSDUH 2001-2012 participants who responded to the question about taking prescription psychiatric medication, 47,205 (10.8%) responded positively. In unadjusted analyses, the odds of taking psychiatric medication increased by about 22% over the 12 years period (OR=1.22, 99% CI=1.16-1.28, $p<.001$). The statistically significant temporal trend persisted in adjusted analyses (Table 1).

Seeing mental health professionals

Of the 345,705 NHIS 2001-2012 participants who responded to the question about seeing a mental health professional in the past year, 25,277 (7.0%) responded positively. In unadjusted analyses, the odds of seeing a mental health professional increased by 33% over the 12-year period of the study (OR=1.33, 99% CI=1.25-1.41, $p<.001$). The statistically significant temporal trend persisted in the adjusted analyses (Table 1).

Any mental health treatment

Of the 451,409 NSDUH 2001-2012 participants who responded to questions about any form of treatment for mental health problems, 59,007 (13.1%) reported at least one type of service use. In unadjusted analyses, the odds of mental health treatment increased by 14% over the 12 year period (OR=1.14, 99% CI=1.07-1.21, $p<.001$). The statistically significant temporal trend persisted in analyses adjusted for age, sex and race/ethnicity (Table 1).

Perceived unmet need for mental health treatment

Of the 451,656 NSDUH 2001-2012 participants who responded to questions regarding perceived unmet need, 30,592 (4.9%) responded positively. The odds of perceived unmet need for treatment did not appreciably change over the years in unadjusted analyses (OR=1.00, 99% CI=.99-1.01, $p=.937$) or adjusted analyses (Table 1). Among participants who received any mental health care, the prevalence of perceived unmet need was 18.9% across survey years and did not change significantly over time (data not shown).

DISCUSSION

This study recorded modest increases in mental health treatment seeking and the use of psychiatric medications in the US in the first decade of this century. However, we observed few changes in the prevalence of severe or moderate psychological distress, assessed using the K6

measure, in prevalence of depressive symptoms meeting the threshold of a major depressive episode assessed using a structured interview or in perceived unmet need for mental health care. Indeed the global assessment of the number of days with poor mental health showed a very modest but consistent increase over time. These trends are consistent with those shown for the decade of 1990s which also showed evidence of even more rapid increases in the service use and little evidence of a reduction in the prevalence of mental disorders.^{1, 5, 9}

The expectation to see a decrease in the prevalence of distress or depressive symptoms with increase in treatment seeking is not unjustified. Increase in the use of statins has led to significant reduction in population cholesterol levels.²³ Similarly, growth in treatment of hypertension has led to better control of this illness.²⁴ Yet, there is no clear evidence that expansion in the treatment of mental disorders or psychological distress has led to reduced prevalence or incidence of these conditions.

These results are open to a number of interpretations as discussed by us and other investigators.^{9, 10, 25} Secular trends in psychological distress and depression have been noted in the past²⁶⁻²⁹ and it is possible that the prevalence of psychological distress, depression and perceived unmet need for mental health care would have grown had they not been countered by the corresponding increases in prevalence of treatment. The first decade of the 21st century witnessed a number of social and economic developments in the US and other industrialized nations with potential implications for mental health of the affected populations. Most importantly, the financial crisis of 2008 was associated with significant drops in employment rates and financial assets. Evidence for negative effects of this crisis on mental health status of the population is growing.³⁰⁻³²

It is also possible that the public has become more comfortable discussing mental health issues and more willing to report psychological problems on surveys,^{33, 34} leading to an increase in the prevalence of self-reported psychological distress or depressive symptoms. Consistent with this view, a study comparing responses to three general population surveys in 1957, 1976

and 1996 found a significant increase in the percentage of US adults who reported an impending “nervous breakdown”—from 19% in 1957 to 26% in 1996.³⁵

Another possible explanation for increase in service use in conjunction with no change in prevalence of psychological distress and depressive symptoms is that the available treatments may have been of low quality or intensity or not appropriately targeted. For example, the major growth in the use of antidepressant medications occurred in primary care settings and among patients with less severe mental health problems^{2, 14, 36} who may not respond to treatments to the same degree as patients with more severe problems.³⁷ Poor targeting of treatments may result in attenuation of treatment effects. Disparities in access to mental health services have been repeatedly noted in past research.³⁸⁻⁴⁵ Data on the use of psychiatric medications further highlight poor targeting in some population subgroups.¹⁴ For example, while prevalence of depression and other common mental disorders is lower among older adults compared to younger or middle-aged adults,⁴⁶ the prevalence of psychiatric medication use among older adults is not proportionally lower.⁴⁷ Our finding of no change in prevalence of perceived unmet need is also consistent with poor targeting of services. If the additional service use was mainly limited to those whose needs were already met, it would not significantly impact the prevalence of unmet need for mental health care.

The discrepancy in the trends of psychological distress assessed using K6 which is comprised of specific questions about mood and anxiety and the trend in the global measure of poor mental health days is puzzling. It is possible that participants in more recent years reported their mental health as poorer when asked a general global question; whereas, in response to specific questions they did not appear to be more distressed in more recent years. It is also possible that the duration of mental health problems has increased in more recent years. However, an increase in duration should be reflected in prevalence of psychological distress as prevalence is influenced by both the incidence and duration.

The period covered in this study coincided with a number of Federal and state policy initiatives aimed at expanding access to mental health services that may have contributed to changes in accessibility of services.⁴⁸⁻⁵⁴ Most importantly, the enactment of the Mental Health Parity and Addiction Equity Act of 2008 required that insurance coverage of mental health and substance abuse services be equal to coverage of general medical and surgical care.⁵²⁻⁵⁴ At the state level, parity legislation and expansion of Medicaid programs have sought to expand access to mental health care.

It is not clear from the survey data reported here whether the modest changes in mental health treatment seeking reflect the effects of these trends. Future research need to explore whether these Federal and state policies had any appreciable impact on mental health service use.

With the full enactment of the Affordable Care Act (ACA) access to mental health services is likely to increase in the coming years. Judging from the trends in the past two decades, the mere expansion of services under ACA is not likely to result in a decrease in the prevalence of mental health problems. However, improved diagnosis and targeting of serious mental health conditions in primary care settings,⁴⁷ enhancement of quality of available treatments,⁵⁵ and greater emphasis on primary prevention of mental disorders⁹ or secondary prevention of recurrence of disorders²⁵ may help improve the efficiency of the current treatments.

In interpreting these results, a number of limitations of this study should be considered. First, the mental health and service use measures used in this study were quite limited in scope. Prevalence of various mental disorders may have followed different trends. Second, the large sample sizes for these analyses meant that even modest changes over time in some measures were statistically significant. However, the odds ratios represent the magnitude of change and are not affected by sample size. In this regard, it is also noteworthy that small possible reductions in prevalence of psychological distress or mental disorders—which translate into

improvement in potentially millions of lives—may not be captured even in these large surveys. For example, the statistically non-significant 0.4% reduction in prevalence of major depressive episodes in the 2005-2012 period in NSDHU translates into approximately 1 million adults. Larger population samples are needed to reliably assess changes of this magnitude. Third, psychological distress is known to impact service use and, in turn, may be impacted by service use. Due to the observational nature of the data these reciprocal influences cannot be separated in this study. Furthermore, it is not possible to assess whether the increase in psychiatric medication use is fully attributable to increased contact with mental health professionals since these estimates were based on different datasets. However, other studies have recorded an increase in prescription of psychiatric medications by general medical providers in recent years.⁵⁶

In the context of these limitations, the data presented here provide a very broad picture of time trends in psychological distress and depressive symptoms in the US during the first decade of this century. We detected few changes in distress and depressive symptoms measured by objective rating scales or structured interviews. However, the study detected a modest increase in mental health service use, including medication use and contact with mental health professionals. The data presented in this report predate implementation of the major components of ACA, which will likely have a significant impact on delivery of mental health service. It would be important to continue monitoring the population's mental health and service use status as the major components of this initiative are implemented in future years.

REFERENCES

1. Kessler RC, Demler O, Frank RG, Olfson M, Pincus HA, Walters EE, et al. Prevalence and treatment of mental disorders, 1990 to 2003. *N Engl J Med* 2005;352(24):2515-2523.
2. Mojtabai R. Increase in antidepressant medication in the US adult population between 1990 and 2003. *Psychotherapy and psychosomatics* 2008;77(2):83-92.
3. Paulose-Ram R, Safran MA, Jonas BS, Gu Q, Orwig D. Trends in psychotropic medication use among U.S. adults. *Pharmacoepidemiol Drug Saf* 2007;16(5):560-70.
4. Kessler RC, Berglund P, Demler O, Jin R, Koretz D, Merikangas KR, et al. The epidemiology of major depressive disorder: results from the National Comorbidity Survey Replication (NCS-R). *JAMA* 2003;289(23):3095-3105.
5. Compton WM, Conway KP, Stinson FS, Grant BF. Changes in the prevalence of major depression and comorbid substance use disorders in the United States between 1991-1992 and 2001-2002. *Am J Psychiatry* 2006;163(12):2141-7.
6. Olfson M, Marcus SC, Druss B, Elinson L, Tanielian T, Pincus HA. National trends in the outpatient treatment of depression. *JAMA* 2002;287(2):203-209.
7. Zuvekas SH. Trends in mental health services use and spending, 1987-1996. *Health Affairs* 2001;20(2):214-24.
8. Jorm AF. Improving the mental health of the population: where to next? *The Medical journal of Australia* 2014;201(1):23-4.
9. Jorm AF. Why hasn't the mental health of Australians improved? The need for a national prevention strategy. *The Australian and New Zealand journal of psychiatry* 2014;48(9):795-801.
10. Mojtabai R. The public health impact of antidepressants: an instrumental variable analysis. *Journal of Affective Disorders* 2011;134(1-3):188-97.
11. Jorm AF, Reavley NJ. Changes in psychological distress in Australian adults between 1995 and 2011. *The Australian and New Zealand journal of psychiatry* 2012;46(4):352-6.

12. Brugha TS, Bebbington PE, Singleton N, Melzer D, Jenkins R, Lewis G, et al. Trends in service use and treatment for mental disorders in adults throughout Great Britain. *Br J Psychiatry* 2004;185:378-84.
13. Patten SB, Beck C. Major depression and mental health care utilization in Canada: 1994 to 2000. *Canadian journal of psychiatry. Revue canadienne de psychiatrie* 2004;49(5):303-9.
14. Mojtabai R, Olfson M. National trends in long-term use of antidepressant medications: results from the US National Health and Nutrition Examination Survey. *The Journal of clinical psychiatry* 2014;75(2):169-77.
15. Mojtabai R. National trends in mental health disability, 1997-2009. *American Journal of Public Health* 2011;101(11):2156-63.
16. Pleis J, Lucas J, Ward B. Summary health statistics for US adults: National Health Interview Survey, 2008. *Vital and health statistics. Series 10, Data from the National Health Survey* 2009(242):1.
17. Kessler RC, Andrews G, Colpe LJ, Hiripi E, Mroczek DK, Normand SL, et al. Short screening scales to monitor population prevalences and trends in non-specific psychological distress. *Psychol Med* 2002;32(6):959-976.
18. Kessler RC, Barker PR, Colpe LJ, Epstein JF, Gfroerer JC, Hiripi E, et al. Screening for serious mental illness in the general population. *Arch Gen Psychiatry* 2003;60(2):184-189.
19. American Psychiatric Association. *Diagnostic and Statistical Manual of Mental Disorders, 4th Ed, Text Revision. (DSM-IV-TR)*. Washington, DC: American Psychiatric Association; 2000.
20. First MB, Spitzer RL, Gibbon M, Williams JBW. *Structured Clinical Interview for DSM-IV Axis I Disorders, Research Version, Non-Patient Edition (SCID-I/NP)*. New York, NY: Biometrics Research, New York State Psychiatric Institute; 2002.
21. Streiner DL, Cairney J. What's under the ROC? An introduction to receiver operating characteristics curves. *Can J Psychiatry* 2007;52(2):121-8.

22. Prochaska JJ, Sung HY, Max W, Shi Y, Ong M. Validity study of the K6 scale as a measure of moderate mental distress based on mental health treatment need and utilization. *International Journal of Methods in Psychiatric Research* 2012;21(2):88-97.
23. Mann D, Reynolds K, Smith D, Muntner P. Trends in statin use and low-density lipoprotein cholesterol levels among US adults: impact of the 2001 National Cholesterol Education Program guidelines. *Annals of Pharmacotherapy* 2008;42(9):1208-1215.
24. Gu Q, Burt VL, Dillon CF, Yoon S. Trends in Antihypertensive Medication Use and Blood Pressure Control Among United States Adults With Hypertension The National Health and Nutrition Examination Survey, 2001 to 2010. *Circulation* 2012;126(17):2105-2114.
25. Patten SB. Modelling major depression epidemiology and assessing the impact of antidepressants on population health. *Int Rev Psychiatry* 2005;17(3):205-11.
26. Grof P. The age of misery: affective disorders on the rise. *Canadian journal of psychiatry. Revue canadienne de psychiatrie* 1997;42(4):361-2.
27. Hagnell O, Lanke J, Rorsman B, Ojesjo L. Are we entering an age of melancholy? Depressive illnesses in a prospective epidemiological study over 25 years: the Lundby Study, Sweden. *Psychol Med* 1982;12(2):279-89.
28. Hasin D, Link B. Age and recognition of depression: implications for a cohort effect in major depression. *Psychological Medicine* 1988;18(3):683-8.
29. Kramer M. The rising pandemic of mental disorders and associated chronic diseases and disabilities. *Acta Psychiatrica Scandinavica* 1980;62(S285):382-397.
30. Chang SS, Stuckler D, Yip P, Gunnell D. Impact of 2008 global economic crisis on suicide: time trend study in 54 countries. *Bmj* 2013;347:f5239.
31. De Vogli R, Marmot M, Stuckler D. Strong evidence that the economic crisis caused a rise in suicides in Europe: the need for social protection. *Journal of epidemiology and community health* 2013;67(4):298-298.

32. Economou M, Madianos M, Peppou LE, Patelakis A, Stefanis CN. Major depression in the era of economic crisis: a replication of a cross-sectional study across Greece. *Journal of Affective Disorders* 2013;145(3):308-314.
33. Mojtabai R. Americans' attitudes toward mental health treatment seeking: 1990-2003. *Psychiatric Services* 2007;58(5):642-51.
34. Mojtabai R. Americans' attitudes toward psychiatric medications: 1998-2006. *Psychiatric Services* 2009;60(8):1015-23.
35. Swindle R, Jr., Heller K, Pescosolido B, Kikuzawa S. Responses to nervous breakdowns in America over a 40-year period. Mental health policy implications. *Am Psychol* 2000;55(7):740-9.
36. Mojtabai R, Olfson M. Proportion of antidepressants prescribed without a psychiatric diagnosis is growing. *Health Affairs* 2011;30(8):1434-42.
37. Kirsch I, Deacon BJ, Huedo-Medina TB, Scoboria A, Moore TJ, Johnson BT. Initial severity and antidepressant benefits: a meta-analysis of data submitted to the Food and Drug Administration. *PLoS Med* 2008;5(2):e45.
38. Alegria M, Canino G, Rios R, Vera M, Calderon J, Rusch D, et al. Inequalities in use of specialty mental health services among Latinos, African Americans, and non-Latino whites. *Psychiatr Serv* 2002;53(12):1547-55.
39. Barksdale CL, Azur M, Leaf PJ. Differences in mental health service sector utilization among African American and Caucasian youth entering systems of care programs. *The journal of behavioral health services & research* 2010;37(3):363-73.
40. Carragher N, Adamson G, Bunting B, McCann S. Treatment-seeking behaviours for depression in the general population: results from the National Epidemiologic Survey on Alcohol and Related Conditions. *J Affect Disord* 2010;121(1-2):59-67.
41. Hauenstein EJ, Petterson S, Merwin E, Rovnyak V, Heise B, Wagner D. Rurality, gender, and mental health treatment. *Fam Community Health* 2006;29(3):169-85.

42. Jorm AF, Angermeyer MC, Katschnig H. Public knowledge of and attitudes to mental disorders: A limiting factor in the optimal use of treatment services. In: Andrews G, Henderson S, editors. *Unmet Need in Psychiatry*. Cambridge: Cambridge University Press; 2000.
43. Kataoka SH, Zhang L, Wells KB. Unmet need for mental health care among U.S. children: variation by ethnicity and insurance status. *Am J Psychiatry* 2002;159(9):1548-55.
44. Mojtabai R. Unmet need for treatment of major depression in the United States. *Psychiatric Services* 2009;60(3):297-305.
45. Parslow RA, Jorm AF. Predictors of partially met or unmet need reported by consumers of mental health services: an analysis of data from the Australian National Survey of Mental Health and Wellbeing. *Aust N Z J Psychiatry* 2001;35(4):455-63.
46. Jorm AF. Does old age reduce the risk of anxiety and depression? A review of epidemiological studies across the adult life span. *Psychological Medicine* 2000;30(01):11-22.
47. Mojtabai R. Diagnosing depression in older adults in primary care. *The New England journal of medicine* 2014;370(13):1180-2.
48. Deck DD, McFarland BH, Titus JM, Laws KE, Gabriel RM. Access to substance abuse treatment services under the Oregon Health Plan. *JAMA : the journal of the American Medical Association* 2000;284(16):2093-9.
49. Callahan JJ, Shepard DS, Beinecke RH, Larson MJ, Cavanaugh D. Mental health/substance abuse treatment in managed care: the Massachusetts Medicaid experience. *Health Affairs* 1995;14(3):173-84.
50. Deck DD, McFarland BH. Datapoints: Medicaid managed care and substance abuse treatment. *Psychiatric Services* 2002;53(7):802-802.
51. Saunders RC, Heflinger CA. Access to and patterns of use of behavioral health services among children and adolescents in TennCare. *Psychiatric Services* 2003;54(10):1364-71.
52. Wallace NT, McConnell KJ. Impact of comprehensive insurance parity on follow-up care after psychiatric inpatient treatment in Oregon. *Psychiatric Services* 2013;64(10):961-6.

53. McDaid C. Parity between behavioral health and medical services. *Health Aff (Millwood)* 2011;30(11):2219.
54. Garcia RA. Equity for all? Potential impact of the Mental Health Parity and Addiction Act of 2008. *J Leg Med* 2010;31(1):137-55.
55. Young AS, Klap R, Sherbourne CD, Wells KB. The quality of care for depressive and anxiety disorders in the United States. *Archives of General Psychiatry* 2001;58(1):55-61.
56. Olsson M, Kroenke K, Wang S, Blanco C. Trends in office-based mental health care provided by psychiatrists and primary care physicians. *The Journal of clinical psychiatry* 2014;75(3):247-53.

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