

Lost Time on the Job: The Effect of Depression Versus Physical Health Conditions

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TALKING POINTS

Psychiatry

● Pharmacy

● Formulary

● Neurology

- Effective treatments for various forms of depression and other psychiatric disorders will reduce patients' work disability.
- Development, availability, and accessibility of pharmacological treatments for depression and other psychiatric disorders have substantial economic consequences at the level of the individual, the employer, and the community.
- Better access to affordable prescription medications for treating depression and other psychiatric disorders may increase the costs of prescription drug programs, but the resulting increase in the cost of insurance premiums to employers may be offset by reductions in the depression-based work absenteeism they face.
- The development of better treatment regimens for mental health conditions through further identification of the genetic and physiological precursors to psychiatric disorders will lead to improved economic productivity at the national level.

Abstract

What is the differential effect of depression and other psychiatric disorders vs physical health conditions on absenteeism and nonproductive time on the job? The prevalence of depression and other psychiatric disorders is growing in the general population, yet insurance coverage for treatment of mental health conditions lags behind coverage of physical health conditions. Using data from the Midlife Development in the United States (MIDUS) Survey, we examined the number of work-loss and work-cutback days associated with a variety of psychiatric and physical health conditions. Depression was found to be a major contributor to work-loss and work-cutback days among working-aged Americans, with effects surpassing almost all of the chronic medical conditions that we examined. Although additional prospective research is warranted, the results reported here clearly suggest that enhancement of insurance coverage for mental health services would benefit employers through less employee

absenteeism and enhanced productivity while on the job.

Introduction

Depression is one of the most common disorders in the US, afflicting between 4.6% and 10.3% of the general population in any given year and with a lifetime prevalence between 17% and 19%.^{1,2} Other reviews of epidemiologic data from countries around the world further indicate that the lifetime prevalence rates of major depression are increasing, particularly among white American cohorts born after 1940.³ Worldwide, depression is one of the leading causes of disability.⁴ Yet here in the US, less than one third of persons with diagnosable psychiatric disorders receive treatment.^{5,6}

One reason for the undertreatment of depression and other psychiatric disorders is the inadequate coverage of mental health conditions provided by most employer-sponsored health plans. Despite demonstrated increases in absenteeism and reductions in productivity associated with depression and other psychiatric disorders,⁷⁻¹³ there is a relatively low

demand for comprehensive coverage of mental disorders by employers.¹⁴ Thus, although employers would seem to have a strong incentive to improve coverage for treating depression and other psychiatric disorders in their workers, employers appear reluctant to enhance behavioral health benefits.

Empirical data comparing the relative costs of depression (and other psychiatric disorders) vs medical conditions borne by employers is essential to the argument that employers should pay greater attention to behavioral health problems among their workforce. Given the stigmatization of mental illness and misconceptions about the nature and consequences of psychiatric disorders,¹⁴ employers may continue to regard depression as being of little importance to worker productivity. Earlier studies, however, have already shown that the social and physical dysfunction associated with depression is high, often surpassing prevalent chronic physical health conditions. Cross-sectional and longitudinal evidence from the Medical Outcomes Study (MOS) indicated that depressed individuals

reported greater interference in their work- and family-related role functioning, and a greater number of days in bed due to poor health, than did individuals with common physical conditions such as hypertension and diabetes.^{15,16} Indeed, of all the physical health conditions considered in these studies, only coronary artery disease resulted in more bed days and interference in role functioning than did depression. The results from these studies cannot be directly translated into employer costs, however, because they did not exclusively examine restrictions in workplace performance or the number of lost or limited workdays due to illness. Furthermore, the MOS findings may not generalize to the national population of adult workers.

The goal of our study was to compare the magnitude of the associations of work-loss and work-cutback days with depression and other behavioral health problems (eg, anxiety disorders, alcohol and drug abuse) vs corresponding associations with various medical conditions among a nationally representative sample of working adults. Results from this study were then translated into estimates of the indirect costs of depression borne by employers. The results from this study and estimated indirect costs of depression provide employers with important information that can be used to guide decisions regarding the importance of health insurance coverage of depression vs medical conditions.

Methods

Data and Sample

The data for this study are from the 1995 Midlife Development in the United States (MIDUS) Survey of noninstitutionalized US residents aged 25 through 74 who have telephones. The survey instruments were developed by the members and associates of the John D. and Catherine T. MacArthur Foundation Network on Successful Midlife Development, an interdisciplinary team of researchers, and included information on sociodemographic, psychological, economic, and medical characteristics of the respondents. MIDUS respondents first participated in a random-digit-dialing

telephone interview lasting approximately 40 minutes. The response rate for the telephone questionnaire was 70%. Respondents to the telephone survey were then asked to complete two self-administered mail-back questionnaires. The response rate for the mail-back questionnaire was 86.8% of telephone survey respondents, yielding an overall survey response rate of 60.8% for both parts of the survey. The sample analyzed here consisted of respondents who completed both the telephone and mail surveys and were working for pay when they completed and returned the mail-back questionnaire (n=2,130).

Variables

The primary outcomes in this study were responses to two comparable questions asked during the telephone interview of the survey: 1) "In the past 30 days, how many days were you totally unable to go to work or carry out your normal household work activities (ie, work-loss days) because of your physical or mental health?"; and 2) "Aside from the day(s) you were totally unable to work, how many of the past 30 days did you have to cutback on work or how much you got done (ie, cutback days) because of your physical or mental health?" Previous research finds that retrospective reports by employees of work-loss days correspond with employers' records of absence due to sickness.¹⁷

Diagnoses of depression and anxiety disorders (generalized anxiety and panic attacks) and a nondiagnostic dichotomous proxy of substance (drug and alcohol) abuse during the past year were operationalized using items adapted from the World Health Organization's Composite International Diagnostic Interview (CIDI) and reported on in detail elsewhere.¹ The comparison physical health conditions were operationalized with items from the mail-back questionnaires asking respondents, "In the past 12 months, have you experienced or been treated for any of the following..." followed by a list of medical conditions. We examined the following aggregate categories: 1) respiratory disorders (eg, asthma, bronchitis, or emphysema); 2) bone disorders (eg, arthritis, rheumatism, sciatica, lumbago, recurring

backache, other bone or joint diseases); 3) immune disorders (eg, HIV/AIDS, lupus, or other autoimmune disorders); 4) hypertension; 5) problems sleeping; 6) diabetes; and 7) neurological disorders (eg, multiple sclerosis, epilepsy, or stroke). In addition, respondents were asked whether they had ever had a heart attack or cancer.

Statistical Analyses

We first calculated the frequency distributions for the health conditions and univariate statistics for work-loss and work-cutback days. We then examined bivariate relationships by calculating the mean and standard error of work-loss and work-cutback days during the previous 30 days. This sample was taken from among workers without any health problems and from among workers who reported having each of the health conditions described above including depression, anxiety disorder, and substance abuse. We then estimated negative binomial regression models of work-loss and work-cutback days as a function of depression, anxiety disorder, substance abuse, and the physical health conditions; we controlled for age, sex, race, and the log of the number of hours worked per week. Given the prevalence of psychiatric comorbidity,¹⁸ we also considered interactions between psychiatric disorders in determining work-loss days, but they did not prove to be significant explanatory variables and were dropped from the final specification. Similarly, education, marital status, and parental status were also considered as control variables, but did not contribute additional predictive power.

Finally, we simulated the total productivity costs associated with depression among the workers in the MIDUS sample as follows. First, the weighted number of MIDUS workers with depression was multiplied by the estimated effect of depression on the total number of productive days lost per month, under the assumption that workers are 40% less productive during work-cutback days.¹⁹ These calculations were performed separately for each age-sex group. The lost number of days for each age-sex group was then multiplied by a *per diem* rate,

calculated by multiplying the 1998 median daily earnings by 1.3 to account for fringe benefits. This figure is also conservative, since median earnings are much lower than average earnings. These numbers were multiplied by 12 and added up across groups to get a total.

Results

The study population was predominantly middle-aged, with the majority (68%) of respondents aged 31–53. Over half of the sample were women, while approximately 11% of respondents were black. On average, workers in this sample reported working approximately 43 hours per week.

Figure 1 shows the prevalence rates of each physical and psychiatric condition examined in this study. Several results are noteworthy. First, only slightly more than one third (35.2%) of employed respondents were completely free of measured physical or psychiatric disorders, indicating that the majority of working adults are required to effectively cope with some type of chronic condition. Next, psychiatric disorders appear to be more prevalent than many common physical

disorders that are frequently covered by comprehensive health insurance. For example, the estimated prevalence rates for major depression within the past year and drug and alcohol problems were comparable to, or surpassed, the self-reported rates for hypertension and respiratory disease, while anxiety disorder was as common in this sample as was a history of heart disease. Finally, consistent with evidence suggesting an increasing prevalence of major depression,³ it is noteworthy that major depression was more common in this sample of adults interviewed in 1995 than in a comparable general population sample interviewed earlier in the decade.¹

Figures 2 and 3, respectively, show the unadjusted average work-loss and work-cutback days by health condition. On average, respondents with depression or anxiety disorder reported between 1/2 day and 1 full day more lost from work in contrast to individuals with a chronic physical health condition such as respiratory disorders or hypertension. Similarly, the average number of cutback days for workers with depression or anxiety disorder was higher than the average

number of days taken by workers suffering with most of the chronic physical health conditions. Indeed, only individuals with neurological disorders (eg, multiple sclerosis, epilepsy, stroke) reported more cutback days than did respondents with mental health conditions. Individuals with drug or alcohol problems reported fewer work-loss and work-cutback days on average than did those with depression or anxiety, but still exhibited greater lost time than did individuals without any chronic health conditions.

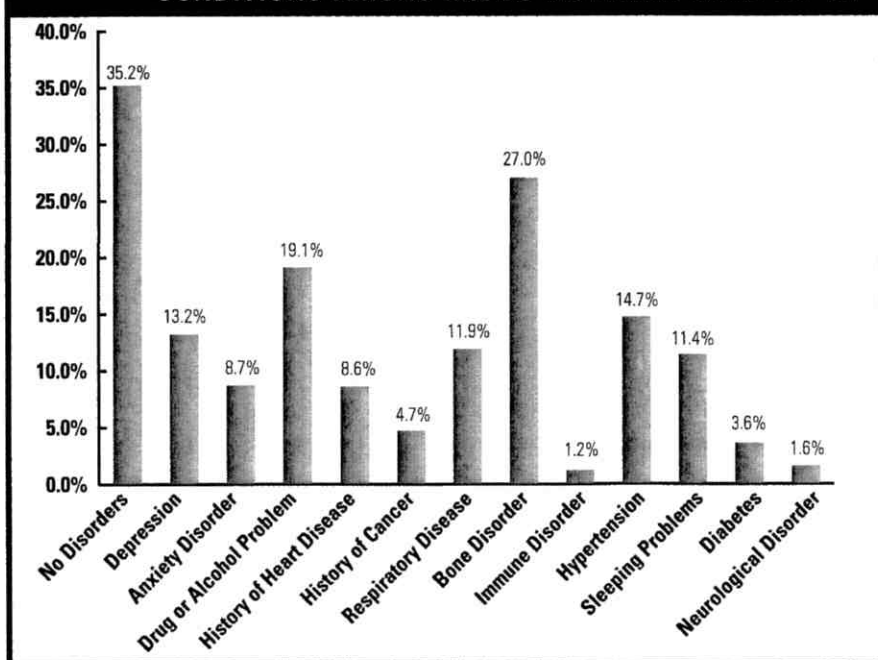
Figures 4 and 5, respectively, give the adjusted relative ratios of work-loss and work-cutback days for each condition. MIDUS workers are expected to have 2.96 times as many work-loss days and 2.10 times as many work-cutback days if they are depressed than if they are not depressed, after adjusting for demographic characteristics and other behavioral and medical problems. Strikingly, depression has a larger and more statistically significant effect on work-loss days than any of the other medical or behavioral health conditions. For example, bone disorders, which were associated with slightly more than a doubling of work-loss days, are the only other conditions that come close to matching both the magnitude and significance of the depression effect.

Depression is also one of the major contributors to work-cutback days; the only medical conditions that had statistically significant effects on work-cutback days that were larger than the effect of depression were cancer, bone disorders, sleep disorders, and neurological disorders. (It should be noted that to the extent that depression causes sleep disorders, controlling for sleep disorders will lead to a conservative estimate of the effect of depression on work-cutback days.) Interestingly, although neither anxiety disorder nor drug and alcohol abuse was significantly associated with work-loss days, both had independent, significant, and large effects on work-cutback days.

Conclusion

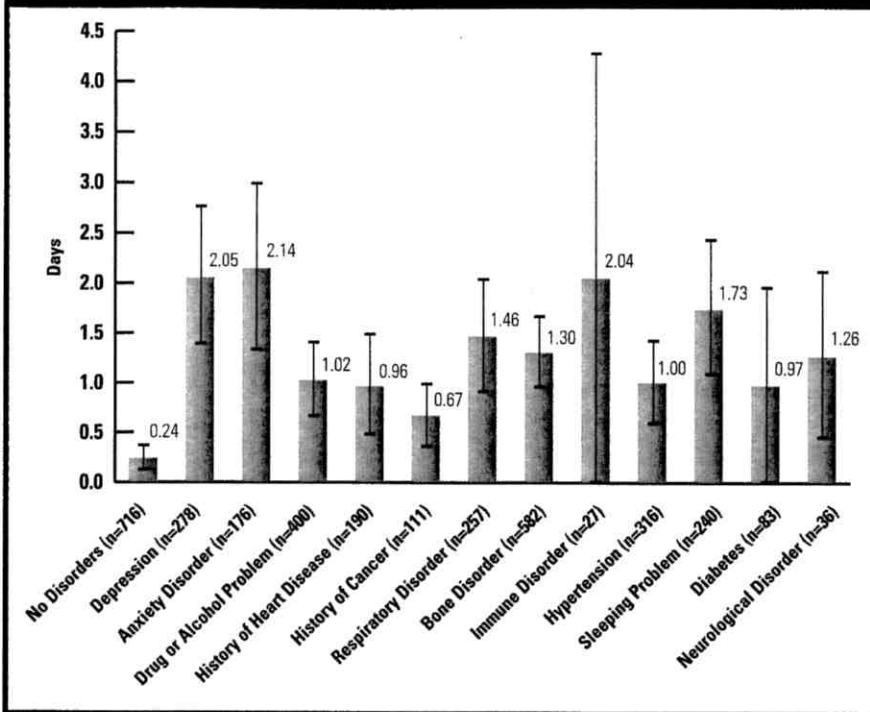
The findings of our study suggest that depression is a major contributor to work-loss and work-cutback days among working-age Americans, with effects that

Figure 1. PREVALENCE OF PSYCHIATRIC AND HEALTH CONDITIONS AMONG MIDUS WORKERS AGED 25–74



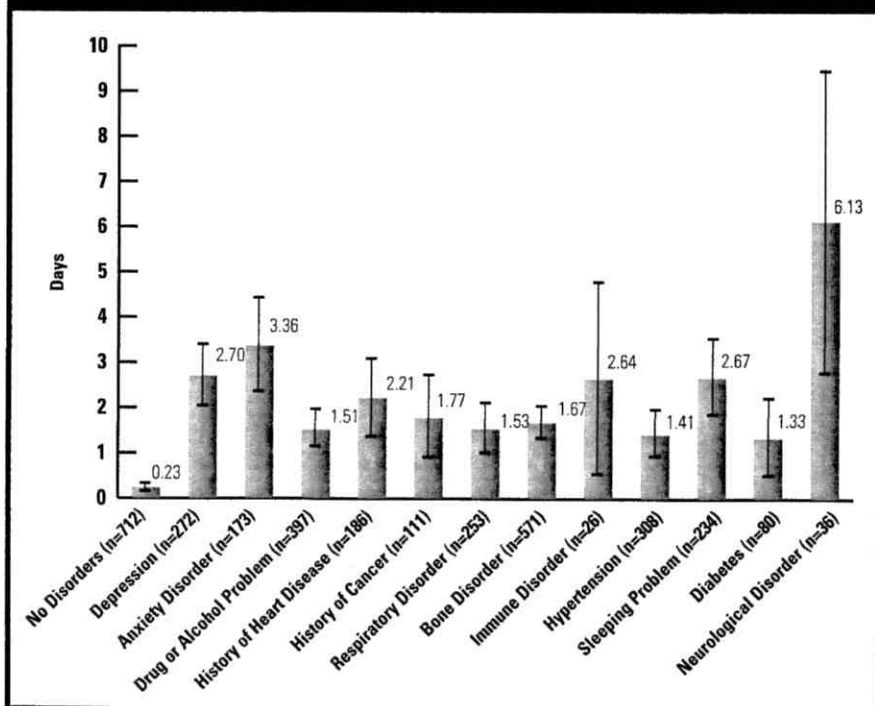
Note: Statistics are based on weighted data.
 Source: Midlife Development in the United States (MIDUS) Survey, 1995. MIDUS data are available at <http://www.isr.umich.edu/src/midus/> and documentation describing MIDUS field procedures are at <http://midmac.med.harvard.edu/tech.html>.
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Figure 2. UNADJUSTED AVERAGE WORKLOSS DAYS AND 95% CONFIDENCE INTERVALS BY HEALTH CONDITION



Note: Sample sizes are based on unweighted data; statistics are based on weighted analyses. Source: Midlife Development in the United States (MIDUS) Survey, 1995. MIDUS data are available at <http://www.isr.umich.edu/src/midus/> and documentation describing MIDUS field procedures are at <http://midmac.med.harvard.edu/tech.html>. Grzywacz JG, Ettner SL. *TEN*. Vol 2, No 6. 2000.

Figure 3. PREVALENCE OF PSYCHIATRIC AND HEALTH CONDITIONS AMONG WORKING ADULTS



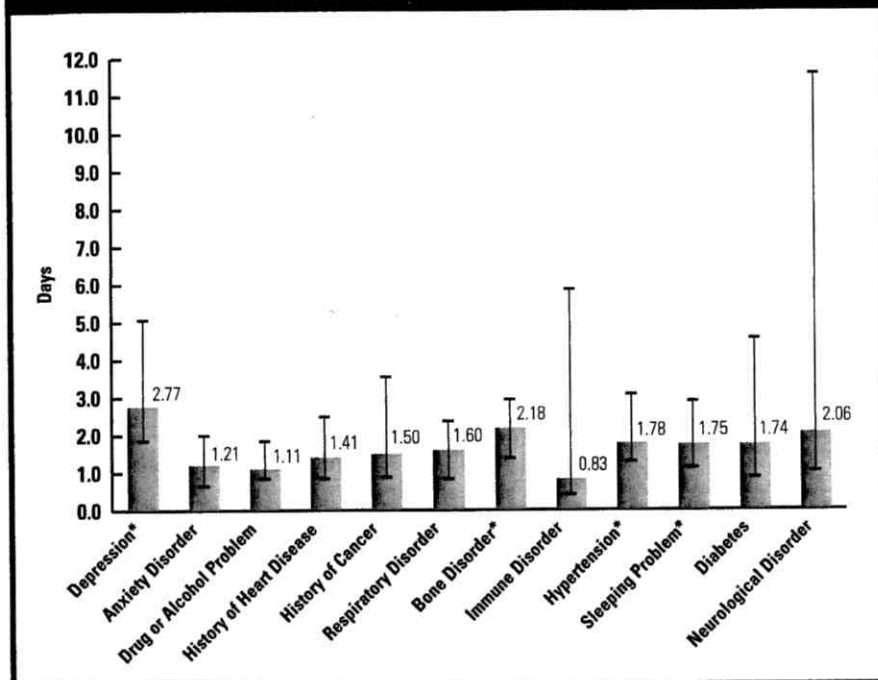
Note: Sample sizes are based on unweighted data; statistics are based on weighted analyses. Source: Midlife Development in the United States (MIDUS) Survey, 1995. MIDUS data are available at <http://www.isr.umich.edu/src/midus/> and documentation describing MIDUS field procedures are at <http://midmac.med.harvard.edu/tech.html>. Grzywacz JG, Ettner SL. *TEN*. Vol 2, No 6. 2000.

surpassed almost all of the chronic medical conditions that we examined. These findings are consistent with earlier work indicating that depression results in greater role-related dysfunction than do chronic physical health conditions,^{15,16} and that depression has a staggering effect on workplace productivity and employer profitability.⁷ Among the MIDUS respondents in our sample, simulations based on highly conservative assumptions suggested that the total value of lost productivity to employers associated with depression was \$425,435. Thus among only 2,130 workers, the cost of depression reached almost half a million dollars in a single year.

If work outcomes cause psychiatric disorders rather than the other way around, then our estimates may be biased, although an earlier study based on National Comorbidity Survey data showed that such simultaneity biases tend to be conservative.²⁰ Finally, if the CIDI-based depression and anxiety diagnoses are better measures than the self-reported medical conditions, then the greater measurement error in the latter may bias the effect of medical problems downward relative to the effect of depression and anxiety. To examine sensitivity of the results to this issue, we reran the models using self-reports of having "anxiety, depression or some other emotional disorder" during the past year. The relative ratios for work-loss and work-cutback days were above two and highly significant, so the relative importance of mental health problems as predictors of work productivity losses is not a function of differential definitions for psychiatric vs medical conditions.

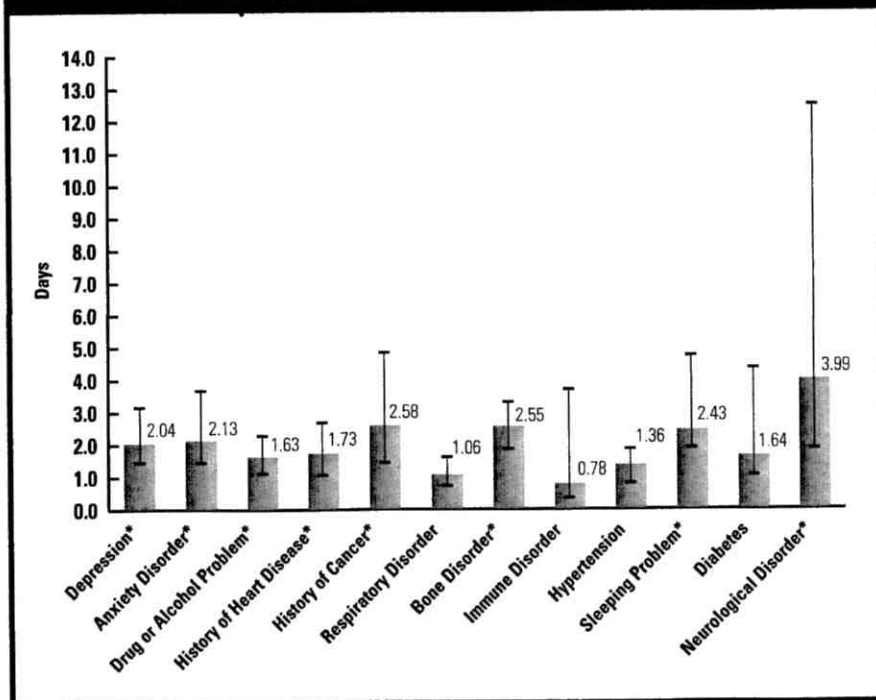
Although our results parallel and extend previous research, it is important to recognize that the apparent importance of depression relative to medical conditions in workplace productivity may reflect self-selection out of the labor force. That is, individuals with varying levels of depression might be able to remain in the labor force, while persons with severely disabling physical conditions such as end-stage cancer or renal failure are unlikely to be employed to begin with. Nonetheless, one implication

Figure 4. **RELATIVE RATIOS AND 95% CONFIDENCE INTERVALS FOR WORK-LOSS DAYS BY HEALTH CONDITION**



Note: *= $P \leq .05$ (two-tailed); estimates are weighted; and relative ratio=(number of work-loss days with condition)/(number of work-loss days without condition).
 Source: Midlife Development in the United States (MIDUS) Survey, 1995. MIDUS data are available at <http://www.isr.umich.edu/src/midus/> and documentation describing MIDUS field procedures are at <http://midmac.med.harvard.edu/tech.html>.
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Figure 5. **RELATIVE RATIOS AND 95% CONFIDENCE INTERVALS FOR WORK-CUTBACK DAYS BY HEALTH CONDITION**



Note: *= $P \leq .05$ (two-tailed); estimates are weighted; and relative ratio=(number of work-loss days with condition)/(number of work-loss days without condition).
 Source: Midlife Development in the United States (MIDUS) Survey, 1995. MIDUS data are available at <http://www.isr.umich.edu/src/midus/> and documentation describing MIDUS field procedures are at <http://midmac.med.harvard.edu/tech.html>.
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is that employers may need to refocus on the types of conditions that are most prevalent and the most disabling among their workforce, and design or augment their health care plan to maximize employee productivity.

Our data may provide further motivation for employers to consider greater support for treatment of depression and other behavioral health problems, either through employee assistance programs (EAPs) or by expanding benefits offered by employer-based insurance plans. Three quarters of employers—possibly more—restrict coverage of behavioral health care to a greater degree than they do the coverage of medical care.^{21,22} This is done through various mechanisms such as higher copayments and deductibles, low fixed dollar caps on total benefits, and direct restrictions on the number of visits or hospital days covered.²³ Furthermore, even though the majority of insurance plans cover mental health treatment,¹⁴ a recent study showed that 9% of small firms and 1% of large firms did not provide any mental health or substance abuse benefits at all to employees in the health plan with the greatest enrollment.²¹ Among our MIDUS sample, 9% of the workers who obtained insurance through their employers reported not having any health insurance that would cover the cost of mental health visits and another 19% were uncertain whether they had such coverage or not.

One deterrent to better coverage of mental health services has been the concern among employers that the “moral hazard” associated with the provision of comprehensive behavioral health care benefits (ie, the propensity of patients to use more services if they are insured) will result in unacceptably large cost increases. Yet, given the effectiveness of managed behavioral health care organizations in directly managing the utilization of patients (see review in Mechanic and McAlpine),²⁴ cost containment no longer provides a convincing argument for forcing employees to bear a greater proportion of the financial burden of depression than they would for any other chronic medical condition. Another widespread, but erroneous belief among

employers is that treatments for psychiatric disorders are not only expensive, but are also not effective.¹⁴ Yet several studies have demonstrated timely improvements in work and other social impairments associated with certain types of treatment for depression.²⁵⁻³² In light of our finding that depression is associated with greater

productivity losses than a large number of medical disorders for which employees generally have much better insurance coverage, discrimination against psychiatric conditions in health care benefits would seem to be a short-sighted policy on the part of employers and one worthy of reconsideration. ♦

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