

**A RAND NOTE**

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# The Functioning and Well-being of Depressed Patients

## Results From the Medical Outcomes Study

Kenneth B. Wells, MD, MPH; Anita Stewart, PhD; Ron D. Hays, PhD; M. Audrey Burnam, PhD; William Rogers, PhD; Marcia Daniels, MD; Sandra Berry, MS; Sheldon Greenfield, MD; John Ware, PhD

We describe the functioning and well-being of patients with depression, relative to patients with chronic medical conditions or no chronic conditions. Data are from 11 242 outpatients in three health care provision systems in three US sites. Patients with either current depressive disorder or depressive symptoms in the absence of disorder tended to have worse physical, social, and role functioning, worse perceived current health, and greater bodily pain than did patients with no chronic conditions. The poor functioning uniquely associated with depressive symptoms, with or without depressive disorder, was comparable with or worse than that uniquely associated with eight major chronic medical conditions. For example, the unique association of days in bed with depressive symptoms was significantly greater than the comparable association with hypertension, diabetes, and arthritis. Depression and chronic medical conditions had unique and additive effects on patient functioning.

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THE POLICY and clinical impact of both medical and psychiatric conditions is increasingly being assessed not just by their prevalence and associated mortality, but by their impact on subjective patient well-being and functional status.<sup>1-5</sup> Estimates of that impact are used to justify funds for training, research, and service provision. Well-being, or the subjective assessment of quality of life and health, and functional status, or the capacity to perform tasks and activi-

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ties, are primary concerns of patients, their families, and clinicians. Poor well-being and functioning are also of policy interest because of societal costs due to loss of productivity and any associated use of health services.<sup>6</sup>

The awareness that chronic health problems can profoundly affect patient functioning, and that patients treated in alternative health care provision systems might differ in the functional outcomes achieved, led to the development of the Medical Outcomes Study (MOS). Tarlov et al<sup>7</sup> describe the aims of the MOS and the rationale for studying patients in three health care provision systems who had one of three chronic medical conditions or depression. In this article, we present evidence that in part justifies the focus on depression, namely, that it is associated with large decrements in patient well-being and functioning. A companion article<sup>8</sup> addresses similar issues for the chronic medical conditions.

While the literature indicates that depression is associated with limitations in social and role functioning,<sup>6,9-12</sup> few studies have comprehensively examined the

well-being and functioning of depressed patients. Herein, we describe unique associations of depression with multiple domains of well-being and functioning. We believe there is a tendency for many clinicians to view the limitations associated with depression as more subjective or of less clinical significance than those associated with major chronic medical conditions. While previous studies<sup>13-18</sup> have estimated associations of specific chronic medical conditions, such as hypertension, diabetes, and heart disease, with multiple domains of patient functioning, such studies have not directly compared patients with depression with those with specific chronic medical conditions. We do so herein, to provide a clinical "yardstick" of the morbidity associated with depression.

In the United States, at least half of patients who receive any mental health care receive that care only from general medical clinicians, and the remainder have at least some visits to mental health specialists.<sup>19,20</sup> Previous authors have reached conflicting opinions about the clinical comparability of patients treated by the two provider sectors.<sup>21</sup> Thus, to understand the functioning of patients with depression in any health care provision system, it is necessary to contrast these two patient groups, as we do herein.

In current clinical practice and research, there are two major paradigms for defining depression: the general phenomenon of depressive symptoms and specific depressive disorders (eg, discrete psychiatric disorders defined by the *Diagnostic and Statistical Manual of Mental Disorders, Third Edition*<sup>22</sup> [DSM-III]). While the general medical sector tends to conceptualize depression according to the former definition, much of the mental health specialty sector conceptualizes depression

according to the latter.<sup>23,24</sup> One of the specific goals of this article is to inform this debate by contrasting the morbidity associated with depression, as defined by these two paradigms.

## METHODS

The MOS is an observational study of adults who receive care either in a group practice-style health maintenance organization, a large multispecialty group practice, or a single-specialty solo or small group practice. The MOS was designed to assess processes and outcomes of care for patients with hypertension, diabetes, coronary heart disease, or depression. This article uses baseline MOS data collected in 1986 from patients at the time of an office visit in these three systems of care in three US sites. For fuller details on the design of the MOS, see the article by Tarlov et al.<sup>7</sup> The three study sites are Los Angeles, Calif; Boston, Mass; and Chicago, Ill. At each site, one large health maintenance organization and several large multispecialty group practices were selected.

A clinician sample was selected to represent the specialty groups providing the majority of care to patients with the four target conditions. The groups were internists, family practitioners, cardiologists, endocrinologists, diabetologists, psychiatrists, and psychologists. Clinicians eligible for participation in the MOS (1) were between the ages of 31 and 55 years; (2) were board eligible/certified or licensed for independent practice; and (3) had direct patient care as their primary professional activity. The MOS attempted to enroll all eligible clinicians in the participating health maintenance organizations and large multispecialty group practices. The health maintenance organizations and large multispecialty group practices included 266 eligible clinicians, of whom 225 (85%) agreed to participate in the MOS.

In the single-specialty solo or small group practice sector, a multistage selection process was used. In the first stage, 2216 clinicians were initially selected by stratified random sampling from lists provided by national professional associations. Of these, 1525 (69%) were contacted. Through a series of two telephone interviews, 511 physicians were identified as eligible and agreed to a final selection interview. Of these, 298 (58%) agreed to participate in the main study. Among single-specialty solo or small group practice clinicians, participants and nonparticipants were similar in demographics and clinical training, but participants spent more time in direct patient care. Participants and non-

participants at the final selection stage did not differ in experience with or attitudes toward depression, as assessed by a self-administered questionnaire. The total number of participating clinicians in all settings was 523.

Each participating clinician was asked to invite all adult English-speaking patients visiting the practice over a specified period (9 days on average) to complete a self-administered questionnaire (the Patient Screener). Screening occurred between March 13 and October 31, 1986. Complete questionnaires were obtained for 74% of eligible patients in multispecialty group practices and 65% of patients in single-specialty solo or small group practices (N = 22 462). To reduce respondent burden, two versions of the Patient Screener were fielded, each administered to a random 50% of patients. This article uses data from the random half of patients (n = 11 242) who completed a version that included a battery on well-being, functioning, and chronic medical conditions.

## Depressive Disorder and Symptoms

To facilitate assessment of depressive disorders in such a large patient sample, a two-stage case-finding procedure was used. First, patients completed an eight-item depression symptom scale included in the Patient Screener. This scale, developed specifically for the MOS, elicits information on intensity of symptoms of depression (eg, feeling sad or crying spells) over the past week and on periods of depressed mood over the past year. Burnam et al,<sup>25</sup> using data from two independent secondary data sources, developed a scoring algorithm for the eight items (each item was weighted by its coefficient in a logistic regression predicting probability of having depressive disorder) and identified a cutoff score (.06) that has excellent sensitivity and acceptable positive predictive value for identifying persons who have *DSM-III* depressive disorder. By *depressive disorder* we mean major depression alone, dysthymia alone, or the combination of both conditions, ie, "double depression." We use exceeding the cutoff as our indicator of current depressive symptoms.

Second, patients who exceeded the cutoff score on the depression symptom scale and who were eligible for a longitudinal phase of the MOS were contacted for a follow-up telephone interview that included the depression section of the National Institute of Mental Health's Diagnostic Interview Schedule (DIS).<sup>26</sup> The DIS is a highly structured diagnostic interview that determines the presence of psychiatric disorders according

to *DSM-III* criteria.<sup>27</sup> Wells et al<sup>27</sup> demonstrated that telephone and face-to-face administration of the DIS are equivalent in terms of identifying lifetime depressive disorders, and that the test-retest reliability of the DIS is acceptable for identifying a sample of depressed patients in a two-stage procedure. The longitudinal phase of the MOS was limited to patients with hypertension, diabetes, coronary heart disease, or depression who had an ongoing relationship with the MOS clinician, who could complete self-administered questionnaires, and who did not have an acute major physical condition that could severely and temporarily limit their functioning.

Among the 11 242 patients in the sample, 2467 exceeded the cutoff on the depression symptom scale. Of the 1876 who were also eligible for the longitudinal study, 1137 (61%) completed the telephone DIS interview. Those who did not complete the telephone interview had 0.5 more years of education, on average, than noncompleters ( $t = 2.7$ ;  $df = 1874$ ;  $P < .01$ ; two tailed), but there were no significant differences in mean age, sex, recentness of last health care visit, or mean depression screener score ( $t$ 's range from 0.3 to 1.3; each  $P > .10$ ). We control for education in the analyses reported herein. Thus, we do not think that nonresponse on the telephone interview poses a serious bias to our results.

Those scoring above the cutoff score on the depression symptom scale were defined as having depressive symptoms. Current depressive disorder was defined as meeting all of the following criteria: (1) lifetime major depression or dysthymia, by *DSM-III* criteria (the only exclusion criterion was lifetime mania); (2) an episode of major depression or period of dysthymia during the last 12 months; and (3) no remission (ie,  $\geq 2$  months with two or fewer depressive symptoms<sup>28</sup>) since the onset of the recent episode. Helzer et al<sup>29</sup> found that the lay-administered DIS tended to underdetect true cases of major depression in persons who just missed meeting full *DSM-III* criteria, ie, those with clustering of symptoms in three rather than four Criteria B symptom groups of major depression. To enhance the sensitivity of the DIS, we modified our criteria for a recent episode of major depression to include persons with clustering in only three symptom groups. Only 43 patients entered the sample owing to this modification.

## Chronic Medical Conditions

The definitions of eight chronic medical conditions are given in Table 1. Each

Table 1.—Definitions of Patient-Reported Chronic Conditions

History of hypertension	Patient was told by a physician, nurse, or other health care professional that he or she has high blood pressure or hypertension.
History of diabetes	Patient was told by a physician, nurse, or other health care professional that he or she has a high blood sugar level or diabetes.
Current advanced coronary artery disease	Patient was told by a physician, nurse, or other health care professional that he or she has had a heart attack, myocardial infarction, or coronary and that it occurred within the last 12 months. Or, the patient reports now having heart failure or an enlarged heart (with or without angina).
Current angina only	Patient reports now having angina, but neither recent myocardial infarction nor heart failure.
Current arthritis	Patient reports now having arthritis.
Current back problems	Patient reports now having back problems, including disk or spine problems.
Current lung problems	Patient reports now having asthma or other severe lung problems, such as chronic bronchitis or emphysema.
Current gastrointestinal disorder	Patient reports now having ulcer (duodenal, stomach, or peptic) or chronic inflamed bowel, enteritis, or colitis.

Table 2.—Definitions of Measures of Functioning and Well-being\*

Measure	No. of Items	Definition	Reliability†
Functioning			
Physical (+)	6	Limitations due to health in activities such as sports, climbing stairs, walking, dressing, and bathing	0.86
Role (+)	2	Extent to which health interferes with work, housework, or schoolwork	0.81
Social (+)	1	Extent to which health interferes with social activities such as visiting friends or relatives in the past month	0.67‡
Bed days (–)	1	Number of days in bed due to health in the last 30 days	NA
Well-being			
Current health (+)	5	Perceptions of current health, such as feeling well or ill	0.87
Free of pain (+)	1	Extent of bodily pain in the past month	0.76‡

\*For (+), high score indicates better functioning and well-being; for (–), high score indicates poorer functioning and well-being. NA indicates not applicable (only one version of one item).

†Based on data from the complete patient sample.<sup>29</sup> Internal consistency reliability (Cronbach's  $\alpha^{(2)}$ ), unless otherwise noted.

‡Estimate based on the correlation between alternative versions of the item.

condition was assessed by one or two items in the Patient Screener. The items required a simple yes-or-no response. We also identified patients who had no chronic conditions. These patients had neither depressive symptoms nor any chronic medical condition defined in Table 1, nor any other chronic problem assessed by the Patient Screener: cancer in the last 3 years; major neurological problems; cardiac pacemaker; limb amputation; kidney disease; legal blindness; or other problem.

### Sociodemographic Factors and Clinical Specialty

The Patient Screener elicited data on age, sex, education, and income. The self-designated medical specialty of the treating clinician was determined from data from professional societies and telephone interviews of the MOS clinicians.

### Well-being and Functioning

The Patient Screener elicited information on six domains of functioning, defined in Table 2. A detailed description of these measures is available in the article by Stewart et al.<sup>30</sup> The measures were based on the general health status measures used in the RAND Health In-

urance Experiment.<sup>31</sup> All measures except days in bed are scored from 0 to 100, with 100 representing perfect health on that construct. The "bed days" measure is the number of days spent in bed in the past 30 days.

### Statistical Analysis

We used the general linear model to conduct analyses of covariance to compare the functioning of patients with current depressive disorder (the "disorder" group), those with depressive symptoms in the absence of depressive disorder (the "symptoms only" group), and those with no chronic conditions. The covariates were age, sex, education, specialty (mental health specialist vs medical clinician), presence or absence of each chronic condition, interactions between specialty and each chronic medical condition, and interactions between specialty and depression group status (current disorder, symptoms only, or no chronic conditions). For these analyses, we excluded the 1330 persons with depressive symptoms who were ineligible or refused the telephone interview, because we did not know if they had depressive disorder.

Least-squares multiple linear regression was used to estimate the unique

associations of each functional status and well-being variable with depressive symptoms (with or without depressive disorder) and with each chronic medical condition. These models used the full sample. The independent variables were sociodemographic characteristics (age, sex, education, and income), specialty, each chronic medical condition, and depressive symptoms (exceeding the screener cutoff).

The SEs and inference statistics presented herein are unadjusted for the clustered sampling design. The intraclass (within-provider) correlations in patient functioning were quite small, ie, .03 to .12, and thus would have minimal effects on the results. In a sensitivity analysis, we determined that the correction was, in fact, trivial.

Because we report many significant findings in a consistent direction, a Bonferroni correction<sup>32</sup> for multiple comparisons is too conservative. We comment on results significant at the  $P < .05$  level or better, but also present the actual level of significance ( $P < .05$ , .01, .005, .001, or .0001). We determined that our main conclusions would not be affected by a strict Bonferroni correction, which would impose a significance level between .001 and .005 for most comparisons.

## RESULTS

### Sample Characteristics

On average, patients of general medical providers are 48 years old, while patients of mental health specialists average 40 years of age ( $P < .05$ ). As shown in Table 3, compared with patients of general medical providers, patients of mental health specialists are more likely to be white, more likely to be highly educated, less likely to be married, and more likely to be female. Patients of general medical providers have a relatively higher prevalence of five out of eight chronic medical conditions and a lower prevalence of back problems.

### Well-being and Functioning of Depressed Patients

Table 4 presents the adjusted mean well-being and functioning of patients in each specialty group who have depressive disorder, depressive symptoms only, and no chronic conditions, based on the analyses of covariance. Out of the 24 possible pairwise comparisons (types 1 through 4 in Table 4) between the two depressed groups (one at a time) and the group with no chronic conditions, the depressed group has worse functioning in 17 comparisons and significantly better functioning in 1 comparison.

We compared patients with depressive disorder vs those with depressive

symptoms only, for each type of provider sector (comparison types 5 through 6 in Table 4). Among patients of medical clinicians, those with depressive disorder have worse current health than those with symptoms only. Among patients of mental health specialists, those with depressive disorder have worse physical and social functioning and perceived current health and more bed days and bodily pain than those with depressive symptoms but no disorder.

We also contrasted depressed patients treated by the two provider sectors (comparison types 7 through 8 in Table 4). Among patients with depressive disorder, those treated by mental health specialists have poorer social functioning than those treated by gen-

eral medical clinicians; but among patients with depressive symptoms but no disorder, patients of general medical providers have worse physical functioning and more bodily pain and days in bed.

### Depressive Symptoms Compared With Chronic Medical Conditions

We estimated the unique associations of each functioning indicator with any depressive symptoms (with and without depressive disorder), relative to comparable associations with specific chronic medical conditions. Table 5 presents the mean score on each functioning indicator, estimated from the multiple linear regression models and adjusted for all covariates in the models.

As shown in Table 5, the physical functioning of patients with depressive symptoms, other factors being equal, is significantly worse than that of patients with four of the chronic medical conditions; it is significantly better than that of patients with current advanced coronary artery disease and current angina only. Patients with depressive symptoms have significantly worse social functioning than patients with each of the eight chronic medical conditions. Role functioning is significantly worse for patients with depressive symptoms than for patients with six of the chronic medical conditions; but it is significantly worse for patients with current advanced coronary artery disease than for those with depressive symptoms. Patients with depressive symptoms have significantly more recent days in bed, other factors being equal, than do patients with six of the chronic conditions; but they have fewer days in bed than patients with current advanced coronary artery disease. Current health is significantly worse for the depressive symptom group than for those with each of the conditions except the two heart conditions. Patients with depressive symptoms have significantly more bodily pain than do patients with five of the medical conditions, including angina only. They have significantly less pain, other factors being equal, than do patients with current arthritis.

We found no significant interactions between depressive symptoms and any of the chronic medical conditions, across all dimensions of well-being and functioning. Thus, depressive symptoms

Table 3.—Patient Characteristics by Provider Group\*

Characteristic	All Providers (N=11242), % (SE)	Medical Clinicians (N=9857), % (SE)	Mental Health Specialists (N=1385), % (SE)	Significance†
Male	38 (0.5)	39 (0.5)	35 (1.3)	<i>P</i> <.05
Married	54 (0.5)	55 (0.5)	46 (1.3)	<i>P</i> <.0001
Completed high school	87 (0.3)	86 (0.4)	94 (0.6)	<i>P</i> <.0001
White	79 (0.4)	78 (0.4)	86 (0.9)	<i>P</i> <.0001
Hypertension history	34 (0.4)	36 (0.4)	21 (1.1)	<i>P</i> <.0001
Diabetes history	12 (0.3)	13 (0.3)	6 (0.6)	<i>P</i> <.0001
Current ACAD	5 (0.2)	5 (0.2)	1 (0.3)	<i>P</i> <.0001
Current angina only	4 (0.2)	4 (0.2)	2 (0.4)	<i>P</i> <.0001
Current arthritis	21 (0.4)	22 (0.4)	15 (1.0)	<i>P</i> <.0001
Current back problems	6 (0.2)	5 (0.2)	7 (0.7)	<i>P</i> <.01
Current lung problems	8 (0.3)	8 (0.3)	8 (0.7)	NS
Current gastrointestinal disorders	8 (0.3)	7 (0.3)	9 (0.8)	<i>P</i> <.05

\*Sample size varies slightly by characteristic owing to missing data. ACAD indicates advanced coronary artery disease; and NS, not significant.

†The significance level (*P*) for comparison of patients of medical clinicians and mental health specialists.

Table 4.—Adjusted Mean Well-being and Functioning of Patients With No Chronic Conditions, Depressive Disorder, and Depressive Symptoms Alone, by Specialty\*

	General Medical Provider			Mental Health Specialty			Significance of Comparisons†							
	NCC Group (N=2285) (SEM)	DIS Group (N=168) (SEM)	SYMP Group (N=466) (SEM)	NCC Group (N=292) (SEM)	DIS Group (N=144) (SEM)	SYMP Group (N=174) (SEM)	1	2	3	4	5	6	7	8
Functioning														
Physical (+)	85.4 (0.55)	81.3 (2.02)	80.1 (1.35)	86.3 (1.42)	81.5 (2.11)	87.8 (1.85)	<i>P</i> <.05	NS	<i>P</i> <.001	NS	NS	<i>P</i> <.05	NS	<i>P</i> <.001
Social (+)	91.7 (0.44)	83.3 (1.59)	84.1 (1.06)	90.2 (1.10)	73.4 (1.68)	82.2 (1.47)	<i>P</i> <.0001	<i>P</i> <.0001	<i>P</i> <.0001	<i>P</i> <.0001	NS	<i>P</i> <.0001	<i>P</i> <.0001	NS
Role (+)	87.0 (0.69)	74.6 (2.46)	77.5 (1.66)	83.9 (1.77)	72.3 (2.65)	78.3 (2.32)	<i>P</i> <.0001	<i>P</i> <.001	<i>P</i> <.0001	NS	NS	NS	NS	NS
Bed days (-)	0.75 (0.06)	1.12 (0.22)	1.23 (0.15)	0.65 (0.16)	0.92 (0.24)	0.05 (0.21)	NS	NS	<i>P</i> <.01	<i>P</i> <.05	NS	<i>P</i> <.001	NS	<i>P</i> <.0001
Well-being														
Current health (+)	73.9 (0.45)	54.3 (1.63)	58.9 (1.09)	74.0 (1.17)	55.7 (1.75)	60.8 (1.53)	<i>P</i> <.0001	<i>P</i> <.0001	<i>P</i> <.0001	<i>P</i> <.0001	<i>P</i> <.05	<i>P</i> <.05	NS	NS
Free of pain (+)	73.4 (0.56)	63.4 (2.02)	63.8 (1.36)	78.3 (1.43)	67.1 (2.14)	73.8 (1.87)	<i>P</i> <.0001	<i>P</i> <.001	<i>P</i> <.0001	NS	NS	<i>P</i> <.05	NS	<i>P</i> <.0001

\*Adjusted for sociodemographics, presence of chronic medical conditions, and interactions of specialty with each medical condition and with an indicator of depression group status (no chronic conditions, depressive disorder, or depressive symptoms alone). For (+), higher score indicates better functioning and well-being; for (-), higher score indicates poorer functioning and well-being. NCC indicates no chronic conditions; DIS, depressive disorder; SYMP, depressive symptoms alone; and NS, not significant.

†The comparison types are as follows: 1, medical sector, comparison of DIS and NCC groups; 2, mental health sector, comparison of DIS and NCC groups; 3, medical sector, comparison of SYMP and NCC groups; 4, mental health sector, comparison of SYMP and NCC groups; 5, medical sector, comparison of DIS and SYMP groups; 6, mental health sector, comparison of DIS and SYMP groups; 7, among DIS patients, comparison of medical and mental health sectors; and 8, among SYMP patients, comparison of medical and mental health sectors.



Table 5.—Predicted (Adjusted) Mean Well-being and Functioning for Patients With Depressive Symptoms and Chronic Medical Conditions\*

	Functioning				Well-being	
	Physical (+) (n = 8872)	Social (+) (n = 9175)	Role (+) (n = 8825)	Bed Days (-) (n = 9232)	Current Health (+) (n = 9297)	Free of Pain (+) (n = 9154)
Depressive symptoms	77.6	81.2	73.7	1.40	58.7	64.5
Hypertension history	86.4†	94.9†	90.0†	0.36†	72.1†	77.5†
Diabetes history	81.5‡	89.6†	80.7†	1.02§	64.2†	76.3†
Current ACAD	65.8†	83.9	60.4†	2.08¶	60.6	70.8†
Current angina only	71.2¶	89.8†	72.4	0.30†	60.8	70.0‡
Current arthritis	80.6	92.1†	83.6‡	0.53†	69.9†	60.4*
Current GI problem	82.8¶	88.8†	79.9¶	0.93§	64.2†	65.1
Current lung problem	75.5	88.5†	78.8‡	1.14	64.3†	73.0†
Current back problems	79.0	93.2†	82.6†	0.76¶	73.0†	66.8
No chronic condition	88.1†	94.6†	90.6†	0.41†	75.7†	76.2†

\*The predictions are adjusted for sociodemographics, presence of medical conditions, depressive symptoms, specialty, and interactions of specialty with each medical condition and with depressive symptoms. Significance level is for difference in functioning between each medical condition and any depressive symptoms. For (-), higher score indicates better functioning and well-being; for (+), higher score indicates poorer functioning and well-being. ACAD indicates advanced coronary artery disease; and GI, gastrointestinal.

† $P < .0001$ .

‡ $P < .005$ .

§ $P < .01$ .

|| $P < .05$ .

¶ $P < .001$ .

and chronic medical conditions have additive associations with patient functioning and well-being.

## COMMENT

We have demonstrated that depressive disorder and depressive symptoms in the absence of disorder are associated with limitations in multiple dimensions of patient well-being and functioning when compared with patients with no chronic conditions. We further conclude that the functioning of depressed patients is comparable with or worse than that of patients with major chronic medical conditions. The only chronic conditions having associations with functioning comparable with those of depressive symptoms were current heart conditions.

We found that the effects of depressive symptoms and medical conditions on functioning were additive. For example, the combination of current advanced coronary artery disease and depressive symptoms was associated with roughly twice the reduction in social functioning associated with either condition alone. Perhaps this is one reason why patients with comorbid depressive/medical conditions may be especially likely to come to the attention of physicians.<sup>33</sup> Comorbid medical conditions are also of importance because they can complicate the assessment of depression by masking or mimicking symptoms of depression.<sup>34</sup>

By clarifying the morbidity associated with depressive disorder and symptoms, our findings underscore the importance of appropriate assessment and

treatment of depression across health care settings.<sup>35-37</sup> To the degree that such treatment improves patient outcomes in terms of functioning, patient suffering and societal costs associated with family burden, work loss, and service use may be reduced.

Is there a difference in morbidity for patients with depressive disorders vs depressive symptoms in the absence of disorder? Consistent with Klerman's<sup>36,39</sup> assertion, we found that patients with depressive symptoms, even in the absence of depressive disorder, had poor functioning; their symptoms were thus of considerable clinical significance. Moreover, we found that differences in functioning between patients with depressive disorder and those with depressive symptoms but no disorder were largely limited to patients visiting mental health specialists. Perhaps this is one reason why the distinction between depressive disorder and depressive symptoms may appear relatively less relevant to medical clinicians. While the two paradigms for defining depression may identify patients with similarly poor functioning, they may have different implications for clinical course or treatment response. We are now exploring these issues using data from the MOS.

We found that patients with depressive disorder who visited mental health specialists had much worse social functioning than similar patients visiting medical clinicians; but among patients with depressive symptoms only, those who visited general medical providers had relatively worse physical function-

ing and more bodily pain and bed days. One possible explanation for these findings is that patients select providers on the basis of how their depression is manifested. Because we adjusted our comparisons for the presence or absence of each specific common chronic medical condition, we know that the differences by specialty visited are not due to differences in prevalences of these conditions. But we did not control for differences in severity of each medical condition. Patients of medical providers could have relatively more severe medical illnesses. Similarly, the relatively poorer social functioning observed for depressed patients in the mental health specialty sector could be due to a greater severity of depression or higher prevalence of comorbid psychiatric disorders in this sector.

Our indicators of chronic medical conditions were based on patient self-reports. Stewart et al,<sup>8</sup> using physician-reported data, reached similar conclusions about the well-being and functioning of patients with hypertension, diabetes, and heart conditions, relative to a group with no chronic conditions, as those reported herein. For two medical conditions, hypertension and diabetes, our definition relied on a history of ever having the condition. By contrast, all patients in the depressed sample had active symptoms at the time of the index visit. The functioning and well-being of patients with hypertension or diabetes would probably have been worse than reported herein had we limited our definitions to active or severe disease. In the future, we will use data from the MOS to determine how severity of hypertension, diabetes, heart disease, and depression is related to the functioning and well-being of patients.

Our assessment of depressive disorders relied on the DIS. While its validity has been questioned,<sup>29</sup> no "gold standard" diagnostic assessment tool for DSM-III disorders exists for comparison.<sup>40</sup> The DIS was the most appropriate structured diagnostic instrument for the MOS.<sup>41</sup>

The MOS patient sample is representative of the typical visit and thus overrepresents frequent users who might have poorer functioning. These patients are of particular policy interest, however. The study is restricted to large urban cities and to particular group practices, and thus our conclusions may not be generalizable to other settings. While the response rates were moderate for some groups of clinicians and patients, especially in the single-specialty solo or small group practice sector, they were higher than expected for

a study of private practices and there was little evidence of nonresponse bias. We have presented results from a cross-sectional, observational study. Thus, causal interpretations are not warranted. Depressive symptoms and disorder could result from functional limitations, as well as cause them.

Are self-reports of functioning by depressed patients accurate? Previous authors have noted that depressed patients are unrealistically pessimistic.<sup>42</sup> We found strong associations between depressive symptoms and bed days, which is generally considered a more concrete indicator of morbidity.<sup>6</sup> To further evaluate this concern, we estimated the partial correlation (adjusted for demographics) between each of the six domains of functioning and well-being and the recentness of the last health care visit (an indicator of intensity of use of health services), using data from the Patient Screener. We tested these correlations separately for patients with

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