The Underrecognition and Undertreatment of Depression: What Is the Breadth and Depth of the Problem?

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Currently, 1 in 6 of the population will, at some point during their lives, suffer from major depression. By the year 2020, it has been estimated that major depression will be the second most important cause of disability worldwide. Major depression is associated not only with significant morbidity, but with comorbid chronic illnesses and lost productivity because of excess mortality and morbidity. The most important reason for the recognition and adequate treatment of depression is that symptoms can be effectively controlled. Despite this, patients are frequently neither recognized nor treated adequately. Underdiagnosis and undertreatment of major depression can be associated with factors relating to patients, their physicians, and the health care systems that provide their care. The treatment of depressed patients with appropriate agents, at appropriate doses, for appropriate periods of time, and incorporating appropriate nonpharmacologic strategies, is cost-effective. Since much of the management of depression occurs in primary care, approaches aimed at improving the overall management of the condition have a major role to play in lessening the burden of the disease.

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he National Comorbidity Survey (NCS) administered a structured psychiatric interview to a representative sample in the United States and reported that almost 50% of respondents had at least one lifetime DSM-III-R psychiatric disorder and that major depressive episode was the most common disorder with a lifetime prevalence of 17.3% and a 12-month prevalence rate of 10.3% (Figure 1).¹ Earlier data collected as part of the Epidemiologic Catchment Area (ECA) study² had estimated the lifetime prevalence of major depression at the lower rate of 7%. The difference in prevalence rates between the 2 surveys has been attributed to the use of a slightly different algorithm in the NCS. Notwithstanding the differences in the reported lifetime prevalence rates, it is clear from these 2 large population-based samples that major depression is highly prevalent in society and frequently follows a chronic course.

Despite the known prevalence of depression in the general population, it has been extensively reported that pa-

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tients with this psychiatric disorder frequently go unrecognized and undertreated. This overview will present data to support this contention and consider the reasons for the undertreatment of this disorder. The consequences of the inadequate management of depression will be discussed and finally the availability of appropriate screening tools and treatment modalities considered.

IS DEPRESSION UNDERTREATED?

The rate at which major depressive episodes are recognized and the proportion of patients who are treated for depression have been reported in research studies conducted in community, primary care, and mental health settings. The data will be considered for each of these samples.

Community Studies

The ECA study reported that approximately one third of patients suffering from a major depressive episode sought no treatment and that, overall, only 10% of patients with major depression received adequate doses of antidepressant therapy for an adequate period of time.² The National Institute of Mental Health (NIMH) Collaborative Depression Study, which was of naturalistic design, reported the historical rates of treatment, prior to enrollment, of 217 patients with major depression of at least 1 month's duration.³ Only 34% of the patients had received antidepressant medication for at least 4 consecutive weeks prior to enrollment, and in only 23% of patients was the treatment regi-

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men considered adequate (150 mg of imipramine or its equivalent for 4 consecutive weeks). The NCS included a diagnostic assessment that could be used to define unmet need. This was accomplished by assessing the recent and lifetime utilization of medical services by the respondents; it was reported that of subjects with a 1-year disorder only 20% sought any professional treatment in the last year.¹ A further analysis of this data set has allowed the rate of help-seeking in subjects with minor and major depression to be analyzed.⁴ An increasing rate of physician service utilization was noted with increasing severity of the depressive disorder. However, even with the most severely depressed patients, only 35.3% in their lifetime sought treatment from their medical doctor, despite having recurrent episodes (mean of 12.7 previous episodes of depression).

Data indicating treatment received prior to randomization into clinical trials have been collected and can provide an insight into the treatment of major depression in the community. Historical data from 4 randomized clinical trials indicate the low treatment rates for chronic depression with a range of only 5% to 27% of patients receiving adequate treatment (defined as 150 mg of imipramine or its equivalent for 4 consecutive weeks).^{5–8} In these studies, the proportion of patients who had received no antidepressant treatment prior to randomization was as high as 70%, despite a median duration of illness of at least 20 years.⁵

Primary Care

Similar findings of undertreatment of depression have been observed in the primary care setting.⁹⁻¹¹ In 1992, Katon and colleagues evaluated the adequacy of antidepressant treatment in 119 "distressed high-utilizers" of primary care services.⁹ Approximately half of the sample was considered by a psychiatrist to be depressed and in need of antidepressant treatment, yet only 10.7% had received an adequate dose and duration of antidepressant treatment in the year prior to evaluation. Data from the Medical Outcomes Study, which gathered information from depressed patients who received care in 1 of 3 health care delivery systems in the United States, indicated that overall only 24% of subjects with current major depression were receiving antidepressant therapy.¹¹ The corresponding figure was 15.8% for subjects receiving treatment from a general medical clinician. Subjects who had more severe forms of illness (mean of 18 symptoms of major depression, melancholia, or dysthymia in the preceding year reported on the baseline Diagnostic Interview Schedule) were more likely to be receiving antidepressant medication than those with a milder form of illness (mean of 3 symptoms in the preceding year) (29.4% versus 11.3%, respectively).

A higher rate of recognition and treatment of depression was noted in a 1995 study of 2000 consecutive patients to a primary care clinic.¹⁰ Two thirds of the patients with major depression were recognized by their physician as psychologically distressed, and over 50% were prescribed antidepressant medication.

Mental Health Sector

It might be expected that a more aggressive approach to the treatment of depression would be adopted in the mental health sector. Two studies question this premise, however. In a records review of 201 inpatients with major depression, less than 45% of the patients had received an adequate dose of antidepressant therapy.¹² Undertreatment of depression was also noted in the NIMH Collaborative Depression Study in which, at the 2-year follow-up, approximately 50% of patients had received no further antidepressant therapy and only 49% of inpatients had received at least 200 mg of imipramine or its equivalent for 4 consecutive weeks.^{13–15}

WHAT ARE THE REASONS FOR THE UNDERRECOGNITION AND UNDERTREATMENT OF DEPRESSION?

The reasons for the inadequate management of depression can be viewed from the perspective of the provider, the patient, and the health care system. The National Depressive and Manic-Depressive Association has produced a consensus statement that has discussed a number of the reasons for the undertreatment of depression.¹⁶ These are outlined below.

Provider

Physician training in the diagnosis and management of depression, within both medical schools and postgraduate medical education, is often inadequate. Not only do physicians need to be equipped with the medi-

Variable	Major Depression	Coronary Heart Disease	Cancer	AIDS
Cost per year				
(\$ billion)	44	43	104	66
Lifetime				
prevalence				
(million)	15	7	6	0.2
Recognition rate	Low	High	High	High
Treatability	High	Varies	Varies	Low
^a Data from refere	nce 18.			

Table 1. Comparison of Major Depression With OtherIllnesses^a

cal knowledge to treat these patients, but with the interpersonal skills required to manage emotionally distressed individuals. Specifically for primary care physicians, depression is often not considered to be a "real illness," and, as it is relatively time-consuming to diagnose and treat, there is often too little time available to manage the patients effectively.

Patient

Patients often do not recognize that they have depression. The symptoms themselves often rob the person of their initiative and drive, and consequently, patients may become passive or self-blameful. Also, as far as the depressed patient is concerned, stigma continues to be an issue. These factors compound to result in a lack of effort to seek help.

An additional cause of the inadequate treatment of patients with depression is patient noncompliance. A review article discussing the need to counsel patients about depression and its treatment reported that over 50% of patients treated for depression in general practice stopped treatment within 3 weeks.¹⁷ Such a high dropout rate has been attributed to the delay in onset of effects, the need to continue drug therapy after the initial clinical response, and failure to warn patients about adverse effects.¹⁷

Health System

Characteristics of health care systems themselves can also contribute to the underrecognition and undertreatment of depression. The impact of specific factors differs from one country to another and within health care systems throughout the world; however, in general, many current health care systems view depression as a short-term disorder and do not recognize the chronic and recurrent nature of the illness. Furthermore, the health care system in the United States discourages the frequent monitoring of patients early in the treatment regimen. Many insurance and managed care companies dissuade patients from seeking help from mental health services, and physicians are aware that reimbursement is not provided should patients require more than one treatment approach or referral to another specialist. Figure 2. Total Annual Costs Associated With Depression in the United States in 1990^a

Indirect Costs = 55%



THE COST OF DEPRESSION

Compared with other major public health problems, major depression is more prevalent, highly treatable, yet less well recognized (Table 1).¹⁸ In the United States in 1990, the total annual cost of major depression was estimated at \$44 billion.¹⁹ Direct costs were approximately \$12 billion per year (inpatient, outpatient, and pharmaceutical costs). Indirect costs included mortality (\$8 billion) and absenteeism from work and reduced productivity (\$24 billion). This figure did not account, however, for out-ofpocket family expenses, costs of minor depression, excessive hospitalization, and diagnostic tests (Figure 2). As 72% of all sufferers from depression are estimated to be in the labor force, the authors estimated that the annual economic cost per depressed worker was almost \$4900. Employers do not directly bear all the costs of depression; nevertheless, as a group they have much to gain from the increased awareness and treatment of the disorder.

A recent cost-benefit analysis indicated that the indirect cost savings that would be realized by appropriately treating people with affective disorders would outweigh the direct treatment costs by somewhere in the region of \$4 billion/year.²⁰

Cost-Effectiveness of Treatment

Von Korff and coworkers, over a 12-month follow-up period, have determined the treatment costs, cost offsets, and cost-effectiveness of usual care compared with 2 different collaborative management regimens (psychiatrist consultation and psychologist interview) in minor and major depression.²¹

In the first study, usual care was compared with collaborative care, which consisted of a psychiatrist comanaging





the patient in conjunction with the primary care physician. In patients with major depression, treatment response rates were lower for those receiving usual care than in those with collaborative care (43.8% vs. 74.4%). Although there were additional costs associated with the more intensive therapy regimen, the cost-effectiveness (estimated by the cost per successfully treated case) was slightly lower with collaborative care than with usual care (Figure 3). In patients with minor depression, both approaches (usual and collaborative care) were equally effective, and, since there were significant cost increments, psychiatric consultation was less cost-effective than usual care.

Similar findings emerged in the second study which compared usual care with cognitive behavioral therapy (CBT). Higher response rates and increased costs, but greater cost-effectiveness, were observed in patients with major depression managed with the more intensive approach. However, there was no real benefit in collaborative management with CBT over usual care in patients with minor depression (Figure 3).

These studies support the view that in primary care, the collaborative use of speciality skills can result in more cost-effective treatments for major depression. In contrast, there appears to be little support for collaborative management of patients with minor depression in primary care, as such intervention does not improve the response rate or cost-effectiveness of treatment.²¹

THE CONSEQUENCES OF UNDERTREATMENT OF DEPRESSION

Associated Disability

Data collected during the NCS have been used to study the lifetime impairments associated with minor and major depression^{1,4}; a further subclassification of major depression into moderately severe (5–6 symptoms) or severe (7–9 symptoms) was also recently undertaken. The proportion of patients whose symptoms interfered substantially with daily activities increased from 18.1% in patients with minor depression to 29.1% in the moderately



Figure 4. Disability Due to Depression Compared With Other

severe group, and to 52.3% in subjects with severe major depression.⁴ As severity increased from minor to severe major depression, there was also a decrease in work productivity assessed by work loss and work cutback days.⁴

The decrease in health-related quality of life associated with major depression has also been compared with that associated with other common medical disorders. In a primary care population, mental disorders, including disorders of mood, were associated with more impairment of health-related quality of life than many other common medical disorders such as heart conditions, kidney disease, and arthritis.²² The World Health Organization Collaborative project recognized that disability levels among primary care patients with major depression were greater than disability levels in patients with other chronic conditions (Figure 4).²³

Comorbidity

As highlighted by the NCS, the vast majority of lifetime psychiatric disorders (79%) are comorbid disorders.¹ Furthermore, the major burden of psychiatric illness is concentrated in a small group of comorbid people who constituted some 14% of the survey population and who have a history of 3 or more comorbid conditions. Major depression is frequently associated with anxiety disorders such as panic disorder, and in the NCS, 22% of patients who had a lifetime history of depression reported experiencing a panic attack at some time, and 56% of patients who had a lifetime history of panic disorder had a history of depression. The International World Health Organization (WHO) Study on Psychological Disorders in Primary Health Care, conducted in over 25,000 consecutive primary care patients, reported that anxiety and depression frequently coexisted in this population.²⁴ Almost half the cases of depression and anxiety appeared in the same patient at the same time.

Major depression is also frequently associated with chronic physical illnesses, such as cancer, cardiovascular disease, rheumatoid arthritis, and Parkinson's disease.^{25,26} Although the NCS did not collect detailed data on the comorbidity of major depression with physical illness, it did include a 15-item checklist that asked about the 12-month prevalence of such conditions as high blood pressure, diabetes, severe bone or joint disease, autoimmune diseases, and cancer.⁴ A positive correlation between the 12-month prevalence of depression and the number of 12-month chronic physical conditions was observed. In people with at least 2 chronic physical illnesses, the 12-month prevalence rate of severe major depression was 12.5%, compared with a rate of 3.1% in patients without chronic physical disorders.⁴

Patients with comorbid conditions are more likely to present with chronic disorders, and have an increased risk of suicide attempts, than patients with a single diagnosis. As comorbidity significantly increases severity and morbidity, it is extremely important to effectively manage both the depression and the comorbid disorder.

ARE THERE APPROPRIATE SCREENING TOOLS AND TREATMENTS AVAILABLE TO THE PHYSICIAN?

Screening Instruments

The availability of appropriate instruments to aid the primary care physician in the correct diagnosis of depression is an important consideration. Of the many instruments available, some are self-rating scales such as the short version of the Beck Depression Scale,²⁷ the Brief Carroll Depression Scale,28 the Zung Self-Rating Depression Scale (SDS),²⁹ and the Center for Epidemiological Studies/Depressed Mood Scale (CES-D).³⁰ Other instruments are interview-based assessments and include the Primary Care Evaluation of Mental Disorders (PRIME-MD),³¹ a 26-item questionnaire, followed by a 12-page clinical evaluation guide, divided into 5 diagnostic categories; the Mini-International Neuropsychiatric Interview (MINI),³² a structured interview, which has a depression and dysthymia module; and the 6-item version of the Hamilton Rating Scale for Depression.33

The performance of a number of the self-rating instruments in detecting depression in a primary care setting has recently been assessed²⁸ (Table 2). The Brief Carroll Depression Scale proved to be the most robust instrument in this study; at a cutoff score of 6, there was a positive likelihood ratio of 5.2 of detecting a case of depression. The short version of the Beck Depression Inventory and the Zung SDS had a positive likelihood ratio of 3.6 and the ratios for the long Beck Depression Inventory and the CES-D were 2.0 and 2.9, respectively.

Treatment Options

The undertreatment of depression is all the more surprising considering the wide choice of effective treatments

Table 2. Performance of Different Depression S	Scales	in
Primary Care ^a		

Scale	Cut-Off	Positive Likelihood Ratio	Sensitivity	Specificity
Brief Carroll				~
Depression Scale	6	5.2	0.83	0.84
Short Beck Depression				
Inventory	8	3.6	0.72	0.80
Long Beck Depression				
Inventory	10	2.0	0.90	0.56
CES-D ^b	16	2.9	0.79	0.73
Zung Self-Rating				
Depression Scale	50	3.6	0.87	0.76

^aData from reference 28.

^bAbbreviation: CES-D = Center for Epidemiological Studies/Depressed Mood Scale.

available to the physician. A full review of the efficacy of the various antidepressant drug classes and psychosocial treatments is beyond the scope of this article. However, a summary of the treatment options will be presented.

Pharmacologic therapy. Antidepressant drug classes include agents that have a selective action on the central serotonergic system, those which are selective for the nor-adrenergic system, and those with a mixed action on both systems.

The selective serotonin reuptake inhibitors (SSRIs) have become the first-line agent of choice for many primary care physicians due to their proven efficacy and benign tolerability profile. They are also safe in overdose (with the possible exception of citalopram) and thus provide the primary care physician with a safe prescribing option for patients with major depression and suicidal tendencies. The SSRIs include agents such as paroxetine, fluoxetine, sertraline, fluoxamine, and citalopram. Antidepressants that antagonize 5-HT₂ receptors and, in addition, inhibit serotonin reuptake have been developed; nefazodone and trazodone are 2 examples of this class of drug.

Agents that interact with both the serotonergic and the noradrenergic system include antidepressants such as venlafaxine and mirtazapine. Alternative pharmacotherapeutic options include antidepressants that inhibit norepinephrine reuptake (e.g., reboxetine), inhibitors of dopamine and norepinephrine reuptake (e.g., bupropion), monoamine oxidase inhibitors (e.g., phenelzine and moclobemide), and the tricyclic antidepressants (e.g., clomipramine and amitriptyline). If a patient fails to respond to one type of antidepressant, the physician has a wide choice of other agents with which they can be treated.

Psychosocial treatments. Nonpharmacologic treatments include psychosocial treatments such as interpersonal therapy, problem solving, and CBT. Of these 3 approaches, interpersonal therapy and CBT require detailed training and are administered by mental health professionals, while problem solving may be administered by practice nurses or by primary care physicians. Electroconvulsive therapy is usually reserved for more severe cases of depression. Alternative approaches such as light therapy have also been investigated. Trained personnel are required to administer these treatment options to depressed patients (with the exception of the problem solving technique); this may limit their utility in some primary care centers with limited resources (see article by Goldberg,³⁴ this supplement, for a further discussion of this topic).

CONCLUSION

Major depression is highly prevalent in society, is associated with significant impairments in quality of life, and frequently occurs in the presence of other psychiatric and nonpsychiatric medical conditions. Many studies have shown that major depression is underdiagnosed and undertreated in all sectors of health care despite the availability of screening tools and therapies that are able to treat symptoms effectively.

Drug names: amitriptyline (Elavil and others), bupropion (Wellbutrin), citalopram (Celexa), clomipramine (Anafranil), fluoxetine (Prozac), fluvoxamine (Luvox), imipramine (Tofranil and others), mirtazapine (Remeron), nefazodone (Serzone), paroxetine (Paxil), phenelzine (Nardil), sertraline (Zoloft), trazodone (Desyrel and others), venlafaxine (Effexor).

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