

Epidemiology and Diagnosis of Depression in Late Life

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Depression is a significant concern in elderly patients. Reported prevalence rates differ greatly depending on the definition of depression and the population of interest, with increases reported in settings where comorbid physical illnesses are more common. In community-dwelling elderly patients, prevalences of depressive symptoms and major depressive disorder are 15% and 1% to 3%, respectively. Factors associated with depression in the elderly include female gender, alcohol and substance abuse, pharmaceuticals, family history, and medical conditions such as stroke, Alzheimer's disease, cancer, and heart disease. Recognition of depression is complex because patients often deny their depression, present with somatic complaints, or may have comorbid anxiety or cognitive impairment. Depression is underrecognized and undertreated in the elderly, despite evidence that the benefits of treatment outweigh potential risks. (J Clin Psychiatry 1999;60[suppl 20]:9-15)

Depression is a problem of major public health importance in late life.¹ However, it has been suggested that it is grossly underrecognized and undertreated, particularly in nonpsychiatric settings (e.g., primary care practice, general hospitals, and nursing homes). Part of this problem may be due to confusion about terms and definitions. The term *depression* is used variously to refer to depressed mood, which may or may not be part of a cluster of signs and symptoms constituting a depressive syndrome or episode. A depressive episode may or may not qualify for a diagnosis of a depressive disorder, including but not limited to major depressive disorder and dysthymia. The term *clinically depressed* is also sometimes used to denote a depressive syndrome warranting clinical attention. Because psychiatrists may be playing more of a consultant or educational role in these nonpsychiatric settings, it may be helpful for them to agree on how to define these essential concepts and how they relate to diagnosis and treatment. Although the rest of this special issue is dedicated to treatment issues, this article defines the essential concepts related to late-life depression, reviews relevant epidemiologic data, and discusses comorbid factors that have an impact on presentation and diagnosis. Rather than attempting to provide an exhaustive or overly specialized review, this article focuses on aspects that are clinically

relevant not only to psychiatrists but also to their primary care colleagues.

DEFINITIONS

Depressed mood is essential to the diagnosis of most depressive disorders; it can manifest as irritability or be reported as feeling sad, "blue," or "down in the dumps." It may be a spontaneous complaint or may have to be elicited. Some older patients who deny a depressed mood may report a lack of feeling/emotion or acknowledge a loss of interest/pleasure in usually interesting or pleasurable activities. Other patients may admit these symptoms while denying depression, saying they "have nothing to be depressed about."

The fourth edition of the *Diagnostic and Statistical Manual of Mental Disorders (DSM-IV)*²—the current standard American psychiatric classification—defines 2 depressive syndromes, referred to as a major or minor depressive episode. Table 1 presents the criteria required to diagnose a major depressive episode. A minor depressive episode is defined similarly, but the patient needs to present with only 3 or 4 (rather than 5 or more) symptoms.

Theoretically, a depressive episode as defined above can be either primary (i.e., idiopathic [major depressive disorder]) or secondary to another medical condition or drug. One diagnostic difficulty arises in determining whether a coexisting (comorbid) condition is actually causing or contributing to the depressive syndrome, or is simply coincidental. Implications of this distinction will be discussed below.

Another diagnostic difficulty is related to the question of whether major depression manifests differently in older patients than in young to middle-aged adults, on whom the standard definition was based. Similarly, some authors

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Presented at the closed roundtable "Treatment of Depression in Long-Term Care Patients," Sept. 18-19, 1998, Boston, Mass. This roundtable was supported by SmithKline Beecham Pharmaceuticals.

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Table 1. Diagnostic Criteria for a Major Depressive Episode^a

1. Depressed mood or
2. Loss of pleasure or interest
3. At least 4 (3, if both (1) and (2) are present) additional symptoms:
 - increase or loss of appetite or significant weight gain or loss when not trying to lose weight
 - insomnia or hypersomnia
 - psychomotor retardation or agitation (observable by others)
 - fatigue or loss of energy
 - feelings of worthlessness or excessive/inappropriate guilt
 - diminished ability to think, concentrate, or make simple decisions
 - recurrent thoughts of death, passive or active suicidal ideas
4. Duration of at least 2 weeks, with the above symptoms being present most of the time, nearly every day
5. Symptoms are distressing and/or interfere with functioning

^aAdapted from reference 2.

have proposed that depression presents differently in primary care and psychiatric settings. Many older depressed patients and primary care patients have a tendency not to consider themselves depressed and to complain more of physical (somatic) symptoms than of mental or emotional symptoms. This issue is further confounded by the fact that older individuals and primary care patients are more likely to suffer from comorbid physical ailments, disabilities, and chronic pain. Thus, these somatic symptoms may represent depression alone or the depression-induced reduction of tolerance for "genuine" physical symptoms. While numerous studies have confirmed the association of somatization and poor self-rated health with depression,³ specific diagnostic criteria have yet to be developed for this presumed variant of depression.

A third difficulty exists when a patient's depressive syndrome appears to be a long-standing episode (i.e., lasted for several years), perhaps with some waxing and waning of symptoms, that may not meet the full criteria for major depressive disorder listed in Table 1 and may appear related to stressful situations. Such patients may have dysthymia, also previously known as depressive neurosis or neurotic depression, but they can develop major depression over and above the dysthymia (double depression). Other patients may have lifelong personality traits and behavior patterns that may become exacerbated during stressful periods and may be difficult to distinguish from depressive illness. These same personality traits may also make individuals more susceptible to depressive illness. Regardless of their origin, depressive symptoms in these patients may not resolve completely with antidepressant treatment.

A major depressive disorder as described earlier is classified as single in individuals who present with their first lifetime major depressive episode or as recurrent (unipolar) in patients presenting with at least a second episode and in whom mood state has only varied between normal and depressed. Depressed patients who have experienced hypomania or mania at any point in their life are classified as having bipolar disorder (manic-depressive illness). Hypomania and mania are characterized by elevated mood,

which may be experienced or manifested as happy or euphoric, or as irritable and angry. The mood change is accompanied by grandiose ideas, increased energy, decreased need to sleep and eat, racing thoughts, pressured speech, flights of ideas, increased activity, or even frank agitation and confusion (manic delirium). Bipolar disorder is estimated to be 10-fold less common than major depressive disorder, and older patients suffering from bipolar disorder are rarely identified *de novo* in primary care settings.

EPIDEMIOLOGY

Depression is acknowledged to be a common problem in the elderly. As noted earlier, the prevalence rate depends on the definition of depression and the population of interest. In the community-dwelling (noninstitutionalized) elderly population at large, the prevalence of depressive symptoms appears to be approximately 15%, whereas the prevalence of a major depressive disorder (strictly defined according to standard DSM-IV criteria) appears to be between 1% and 3%.⁴ In primary (ambulatory) care, the prevalence of significant depressive symptoms appears to be around 20%, with the prevalence of major depressive disorder as high as 10% to 12%.⁵ In acute (medical-surgical hospital) care, 10% to 15% of patients have major depressive disorder, and a further 20% to 25% have depressive symptoms.⁶ Finally, in chronic or long-term (nursing home) care, 12% to 16% have major depressive disorder, and another 30% to 40% have depressive symptoms.⁷⁻¹¹

Another epidemiologic point of interest is historical trends. Some data suggest that younger generations (or birth cohorts) may experience a higher burden of depression during their lifetime than previous generations or cohorts.¹² However, the apparent decrease of lifetime prevalence of depression in older persons may also be a function of definition or differential reporting of depression by older patients.^{4,13,14} If the apparent cohort effect is true, one can expect to see an increase in the prevalence of depression as the population ages.¹⁵ Similarly, some evidence suggests that, although early-onset depression (i.e., depression manifesting itself before age 50 or 60 years) is associated with a family history of depression (i.e., genetic risk factors), late-onset depression (i.e., depression first experienced after age 60 years) may be associated with cerebrovascular changes^{16,17} or neurodegenerative disease.¹⁸ Thus, the increase in the number of individuals living into their 80s and 90s could also contribute to an increase in the prevalence of late-life depression.

RECOGNITION AND DIAGNOSIS OF DEPRESSION IN LATE LIFE

Most older patients, including long-term care residents, are cared for by general physicians. Some have argued that the main task of primary care practitioners with regard to

Table 2. Symptoms in Older Depressed Patients That Warrant Consultation With or Referral to a Psychiatrist

Suicidality
Comorbidity with substance use, dementia, or anxiety disorder
Presence of psychosis (delusions, hallucinations) or catatonia
Bipolar disorder
Apparently unable to tolerate antidepressant treatment
Does not respond to adequate antidepressant trial

psychiatric disorders should be to identify patients potentially in need of psychiatric treatment and refer them to mental health specialists. Psychiatric referrals are justified for high-risk cases (Table 2) and treatment-refractory patients. However, most primary care practitioners today rightly consider both the diagnosis and the first-line treatment of depression to be their responsibility.¹⁹

Several studies have suggested that primary care practitioners identify no more than half of their adult (younger or older) patients who suffer from a diagnosable depressive syndrome.^{20–23} Less than half of those identified receive any treatment for their depression.^{24–26} Half of those treated do not receive an antidepressant trial of adequate duration.²⁷ Finally, only a small proportion of those who are treated adequately and respond to their acute treatment subsequently receive adequate maintenance antidepressant therapy.^{25,28} Not surprisingly, the combination of these factors often results in poor outcomes. In mid-life, even when depressed patients are identified, there appears to be an “effectiveness gap” in that the response rate of depression to usual care provided by primary care practitioners is equal to or less than the placebo response rate observed in a typical psychiatric efficacy trial.²⁸ Similar results have been reported later in life.^{29–31}

A variety of reasons have been invoked to explain this effectiveness gap. Among them is the lack of interest of primary care practitioners in mental health problems. However, most accept responsibility for the diagnosis and treatment of depression.¹⁹ These practitioners do not diagnose (and miss) or treat (and ignore) depression randomly; they are more likely to identify conditions for which they believe they can offer an effective treatment.^{32,33} They are also more likely to diagnose and treat more severe depressive syndromes that are less likely to resolve spontaneously.^{26,33–37} Conversely, primary care practitioners are more likely to ignore milder depressive syndromes, particularly if they occur in the context of stressful life events.

Depression in the Context of Stressful Life Events

Stress, either acute or chronic, is often reported as a precipitant of a depressive episode.³⁸ However, the same or similar stress at a different point in the same patient’s life, or in another patient’s life, does not necessarily lead to depression. Acute stress usually takes the form of a traumatic event, but again it should be recognized that the same event is not equally traumatic for all individuals. A com-

mon error is to assume that depression is a reaction to a stressful event or situation and therefore is “understandable” and not in need of active treatment. The older distinction between endogenous depression and reactive depression, with the underlying implication that pharmacologic treatment is not warranted for reactive depression, is counterproductive. Stress can precipitate a depressive illness in the same way that it can precipitate a myocardial infarction, and its presence does not obviate the need for treatment in either case. A common instance of traumatic event in old age is a loss of some kind (i.e., loss of autonomy, functional ability, role, or a loved one). Bereavement is a frequent experience in the elderly, and normal grieving can resemble a major depressive episode.² Depressive symptoms persisting more than a few months or a full major depressive episode, even in the context of a bereavement, should be treated. Treatment of the depression does not interfere with the process of normal grieving.³⁹ Other stressful events can include retirement, financial loss, relocation, or institutionalization. More chronically stressful circumstances can include caring for a sick or disabled family member, poverty, or poor health. The effects of stress can be modified and the risk of depression can be reduced by good social supports.⁴⁰

If the depressive symptoms are of sufficient duration (i.e., if they persist for more than 2 weeks) and affect well-being, self-image, or functioning, they warrant treatment. As discussed above, the most common stressors of late life are different types of losses, and these events and circumstances can lead to depressive illness that should be treated with appropriate pharmacotherapy and/or psychotherapy.

Depression in the Context of Physical Illness

Several other factors may influence the diagnosis of depression in older patients. Because only a minority of depressed elderly patients are seen by psychiatrists, it is possible that those who do reach the psychiatric sector are in some way clinically different from those who remain in primary care. Current psychiatric diagnostic criteria for a major depressive episode (see Table 1) may be inadequate to accommodate the spectrum of clinically significant depressive syndromes that are seen in the primary care setting, particularly among older patients.^{12,41} Furthermore, depressive disorders in late life are commonly associated with a variety of physical disorders and cognitive impairment.

Medical conditions frequently associated with depression include stroke, Alzheimer’s disease, Parkinson’s disease, other neurodegenerative disorders, cancer, heart disease, most endocrine conditions (such as thyroid disease or diabetes), any type of end-organ failure (such as renal, liver, heart, or respiratory failure), vitamin B₁₂ deficiency, fibromyalgia, chronic fatigue syndrome, irritable bowel syndrome, and any condition causing chronic pain.

The mechanisms linking depression and physical illness vary. Some medical conditions may directly precipitate a

Table 3. Approaches to Diagnosis of Depression in Older Patients With Comorbid Medical Conditions

Exclusive approach: neurovegetative symptoms (i.e., changes in sleep, energy, appetite, and weight) are not considered toward a diagnosis of depression
Substitutive approach: neurovegetative symptoms are not considered toward a diagnosis of depression, but they are replaced by additional nonsomatic cognitive symptoms when defining a depressive episode
Etiologic approach: each symptom is evaluated separately, and a clinical judgment is made as to whether a given symptom is caused by a physical disorder or can be attributed to a depressive disorder and can support its diagnosis
Inclusive approach: all depressive symptoms present are considered to contribute to a diagnosis of depression regardless of their (multiple) potential causes

depressive episode by disrupting neurotransmitters and neural circuits. For instance, the degeneration of the aminergic (noradrenergic and serotonergic) nuclei observed in some patients with Alzheimer's disease has been associated with the incidence of clinical depression.⁴² In other patients, the physiologic stress or the functional disability and the resulting psychosocial stress associated with a physical illness (e.g., a hip fracture) may precipitate a depression in a susceptible individual.⁴³⁻⁴⁵ Regardless of mechanism, it is usually necessary to treat both the depression and the comorbid medical conditions.

Independent of specific physical conditions, the overall medical burden (number and severity of physical conditions) is also associated with depression.^{5,46,47} In turn, depression is associated with somatization and lower subjective self-rating of overall health than warranted by objectively observed physical conditions.³

The overlap between depressive and physical symptoms complicates the recognition and diagnosis of depression; loss of interest, low energy, changes in appetite and sleep, weight loss, or difficulty with concentration may be due to physical illness or depression or both.^{46,48,49} Thus, the presence of comorbid physical disorders often causes undue discounting or misattribution of depressive symptoms as being due to the comorbid disorder.^{4,46,50} Similarly, cognitive impairment has been shown to be associated with underreporting of depressive symptoms.⁵¹

Four approaches have been suggested for handling this misattribution problem (Table 3).^{42,52-55} An epidemiologic study has shown that the prevalence of major depressive disorder in community-dwelling elderly can vary 2-fold depending on whether an exclusive or inclusive approach is used.⁴ Given the consistently documented underrecognition of depressive disorders in medically ill elderly, an inclusive approach to diagnosis is recommended with older patients, particularly in long-term care settings. In fact, in physically ill distressed older patients, rather than discounting neurovegetative symptoms and somatic complaints, we recommend interpreting them as strongly suggestive of the presence of an underlying depressive disorder.

Table 4. Somatic Complaints (%) in Older Medical Patients (aged 70-102 years) With or Without Major Depressive Disorder^a

Complaint	With Major Depression (N = 44)	Without Major Depression (N = 288)
Dry mouth	86**	61
Constipation	75*	47
Tremulousness/sweating	68	45
Dizziness	66	49
Heavy feelings in abdomen	63**	38
Palpitations	55***	29
Stomach cramps	50**	20
Burning micturition	50***	20
Tinnitus	47	37
Headaches	46	40
Diarrhea	23	21

^aAdapted from reference 6.

*p < .05. **p < .01. ***p < .001.

In these patients, depression acts as a mediating variable between physical illness and somatic complaints, causing an increase in subjective somatic complaints related to underlying physical illnesses.^{5,56,57} For instance, a study in a general hospital of a group of older patients hospitalized for the treatment of a physical illness found that older patients with major depression, when compared with nondepressed patients, were more likely to endorse somatic symptoms, such as dry mouth, constipation, heavy feelings in their abdomen, palpitations, stomach cramps, and burning on micturition (Table 4).⁶ When these patients are treated with antidepressants, these somatic symptoms are often interpreted as side effects, leading to premature discontinuation of treatment. Clinicians need to be aware of these pseudo-side effects and reassure patients that these effects will improve or even disappear with successful treatment of depression.^{58,59} Similarly, we have reported in a large epidemiologic sample of community-dwelling older adults that lower self-rated physical health was associated more strongly with the presence of a depressive syndrome than with markers of objective health, such as number of prescribed medications.³

There is some evidence that successful treatment of depression decreases somatization and improves older patients' perception of their health, even in the absence of objectively measurable change in medical burden.^{60,61}

Depression in the Context of Cognitive Impairment and Dementia

The relationship between depression and cognitive impairment is complex.^{62,63} A major depressive episode—particularly if it is associated with reversible but significant cognitive impairment—may precede the clinical manifestations of an irreversible dementia.¹⁸ Conversely, depressive syndrome is common during the early stages of an established dementia.⁶⁴ Earlier literature emphasized the importance of distinguishing between depression with cognitive impairment ("pseudodementia") and dementia.

Current practice leads away from the assumption that these are mutually exclusive disorders (in other words, it is recommended that a depressive syndrome, if present, be treated aggressively whether or not there is a concomitant dementia syndrome).

However, cognitive impairment (of uncertain origin) or frank dementia can complicate the diagnosis of late-life depression. Dementia may prevent the recognition of a comorbid depression because several depressive symptoms, including affective blunting, apathy, decreased concentration, poor appetite, sleep disturbance, and psychomotor slowing, overlap with manifestations of dementia.^{65,66} Also, expression of depressive syndromes may change with the progression of dementia-causing illnesses.^{67,68} Finally, diagnosis of depressive syndromes in demented patients varies markedly depending on whether it is based on reports from patients, caregivers, or trained observers.^{42,65,66,69–72} As a result, estimates of the prevalence of depressive disorders in patients with dementia vary widely, from 0% to 87%.^{73,74}

Clinically, the presence of certain symptoms, such as depressed mood, crying spells, loneliness, anxiety, early morning awakenings, decreased self-esteem, hopelessness, preoccupation with death and dying, and suicidal ideation, may help the recognition of depressive disorders in demented patients. For instance, depression should be strongly suspected in a patient with mild dementia who states that he is “finished” and asks his family and his physician to let him die. Typically, identification of depressive symptoms in a demented patient requires interviewing not only the patient but also family members or caregivers who spend a significant amount of time with the patient. Also, demented patients presenting with major depressive syndromes are more likely to have a past history or a family history of a major depressive disorder.⁷⁵ In many cases, validating a diagnosis of a depressive syndrome in a demented patient will rest upon longitudinal follow-up and assessment of response to antidepressant treatment.

Depression in the Context of Prominent Anxiety Symptoms

Throughout the life span, depression and anxiety are closely associated. Early in life, depressive symptoms often present following the onset of an anxiety disorder, such as panic disorder, posttraumatic stress disorder, or obsessive-compulsive disorder. As age increases, the prevalence of these primary anxiety disorders decreases markedly, and prominent anxiety symptoms are most often due to an underlying depression.^{76,77} However, comorbid anxiety often complicates the recognition of the underlying depression and interferes with its adequate treatment. Several studies have documented that antidepressant medications are underused in anxious depressed patients while benzodiazepines are overused.^{78–82} This is particularly unfortunate given that antidepressants of all classes, and serotonergic antidepressants in particular, are better

pharmacologic agents than benzodiazepines to treat not only anxiety symptoms occurring in the context of a depression but also most primary anxiety disorders.^{83–86} Of note, patients with comorbid depression and anxiety are at higher risk for intolerance of treatment due to pseudo-side effects, leading to noncompliance and dropout.⁸⁷ These patients require a slower titration of their antidepressant medication and trials of longer duration (e.g., 6–8 weeks) before they respond.⁸⁷

CONCLUSION

The prevalence of major depressive disorder in the elderly varies by about 10-fold depending on the setting, with a higher prevalence in settings where comorbid physical illnesses are more prevalent. In all settings, the prevalence of depressive symptoms is much (2- to 4-fold) higher than the prevalence of major depressive disorder. Despite this very high prevalence, late-life depression often goes unrecognized and undertreated.^{88,89} Several factors contribute to this phenomenon, such as onset of late-life depression following obviously stressful life-events, comorbid physical illnesses associated with prominent somatization, associated cognitive impairment or frank comorbid dementia, and severe anxiety symptoms. Given the difficulty of recognizing and diagnosing depression in older patients, we favor a strategy of “treating when in doubt.”¹³ Indeed, the benefits associated with treatment of late-life depression outweigh the risks associated with currently available antidepressant medications; untreated depression in late life is associated with excess disability^{44,90} and premature death,^{91–93} while newer antidepressants are usually safe and effective, even in patients with significant medical illness.⁹⁴

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