Psychiatric Assessment and Diagnosis in Older Adults

To provide optimal care, the approach to psychiatric evaluation and diagnosis in older adults requires special attention to several issues. There are important biological, psychological, and social changes associated with either aging itself or with generational differences. In this review, we will address some of the most important aspects of assessment and diagnosis that make geriatric psychiatry a unique subspecialty, including age-related variability in the clinical presentation of common psychiatric disorders, assessment and diagnosis of cognitive disorders and medical comorbidity, and common psychosocial challenges faced by older adults. Although geriatric psychiatrists are uniquely positioned to address the complexities of psychiatric illness in older adults, the fact remains that the majority of older adults who seek psychiatric care will see general adult psychiatrists without subspecialty training. However, with continued vigilance to the issues outlined below, psychiatrists from a variety of training backgrounds can skillfully assess and diagnose psychiatric illnesses in older adults.

**Psychiatric Symptoms in Older Adults**

**Diagnostic Conundrums in the Elderly**

There is some confusion in the psychiatric literature regarding the incidence, prevalence, and illness course of psychiatric disorders in late life. This can be partly attributed to a paucity of studies focused on determining the epidemiology of psychiatric illnesses in older adults (2). Moreover, there is a common belief (and some empirical evidence) that psychiatric disorders (except dementia) are less prevalent in older adults than in younger populations (3). Yet, these studies have certain limitations. Behavioral and neurovegetative symptoms of psychiatric illness frequently overlap with those of general medical conditions, and increasing age is generally accompanied by increased medical comorbidity, which creates diagnostic conundrums in the evaluation of older adults. In addition, age-related changes in the body and brain, as well as cohort effects, can lead to atypical manifestations of psychiatric illness, resulting in inaccurate or overlooked psychiatric diagnosis (4). Increasingly, however, it is recognized that special care needs to be given to psychiatric assessment of the older patient. Awareness and subsequent clinical recognition of the differences in symptoms between older and younger age groups may help reduce both psychiatric and medical comorbidity. Table 1 outlines age-related differences in the clinical features of several major psychiatric illnesses. Estimates of incidence and prevalence as well as prognosis and illness course are included.

**Need for Age-Specific Diagnostic Criteria in Psychiatry**

It is important to note that available information on psychiatric disorders in older adults is based on

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**CME Disclosure**

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research conducted using diagnostic criteria from either the DSM or ICD, both of which were almost invariably developed from models of illness in mostly younger or middle-aged adults. However, it has become increasingly evident that use of these criteria may result in an underestimation of the prevalence of psychiatric disorders in older persons, largely because these criteria have not been validated in older populations (25). Symptoms of psychiatric illness in older adults do not always correspond with criteria described in the standard diagnostic manuals, a phenomenon also seen and more widely recognized among children and adolescents. Ultimately, as research on age-related changes in the brain expands, we will gain a more sophisticated understanding of differences in clinical symptoms of psychiatric illness as a function of age. Creating age-specific diagnostic criteria on the basis of evolving knowledge of this process will allow clinicians to better identify symptoms, diagnose illness, and devise treatments for management of late-life psychiatric disorders. For now, awareness of variable presentations of psychiatric disorders in older adults, as reviewed in Table 1, enables the clinician to be more attuned to the psychiatric needs of older adults.

Cognitive and Functional Assessment of Older Adults

Aging and Cognition

Unlike the disorders described in Table 1, cognitive disorders are unequivocally more prevalent as age increases, and competency in assessing cognition is an essential skill for clinicians caring for older adults. This encompasses the use of cognitive screening assessments, early detection and education about dementias, treatment of comorbid disorders that masquerade as dementia, attention to family system and caregiver issues, referral to and collaboration with other professionals such as neurologists and neuropsychologists, and reassurance when cognitive changes are the result of normal aging.

There is a common public (and even professional) misconception that dementia is a sine qua non of aging. Although age is the most prominent risk factor for dementia, half or more of adults older than age 85 retain normal cognitive functioning (26). Cognitive impairments that meet the diagnostic criteria for dementia should never be dismissed as normal aging. Nonetheless, it is also valuable to recognize that there are some changes in cognition that are age-related and not considered pathological. Examples of such age-related cognitive changes include some decline in free recall and consistently slower processing speed. However, more crystallized abilities (vocabulary and general knowledge) tend to remain stable or even, in some circumstances, increase with age (27). When appropriate, reassurance about benign cognitive changes of aging can allay significant anxiety for older adults, who are increasingly cognizant of illnesses such as Alzheimer’s disease.

Cognitive Assessments

The most widely recognized standardized cognitive assessment used in clinical settings is the Folstein Mini-Mental State Examination (MMSE) (28). The MMSE is useful primarily as a screening tool, although it may also be used as a crude proxy for illness progression in persons with dementia. Cutoffs for “normal” versus “abnormal” scores vary by age and educational attainment (29), in addition to possible cultural variations (30). Criticisms of the MMSE have included a relative lack of assessment of certain cognitive domains (e.g., executive functioning) and insensitivity to early dementia, especially in older adults with high intelligence and educational attainment (31).

Other screening cognitive tests have been developed to address possible limitations of the MMSE. The Mini-Cog Test, which uses only three-item registration and recall separated by the Clock Drawing Test, is somewhat quicker to administer than the MMSE, and is useful in certain settings such as primary care and the emergency room, and appears to have sensitivity and specificity for dementia similar to that of the MMSE (32). Other examples include the Saint Louis University Mental Status examination (33) and the Montreal Cognitive Assessment (34) (Figure 1), which have more extensive memory and executive function assessment than the MMSE.

The gold standard of cognitive assessment is formal neuropsychological testing, typically performed by a specialist in neuropsychology. Referral for neuropsychological testing may be particularly useful if diagnosis is uncertain (e.g., early Alzheimer disease versus dementia of depression), as various forms of dementia exhibit somewhat distinct profiles of relative strengths and impairments early in the course of illness (35). Table 2 lists the most common variants of cognitive disorders among older adults, along with clinically distinguishing features including typical neuropsychological profiles. In moderate-to-severe stages, most forms of dementia eventually cause diffuse and nonspecific impairment across multiple cognitive domains. One must also keep in mind that the most trou-
### Table 1. Overview of Noncognitive Psychiatric Disorders in Older Adults

<table>
<thead>
<tr>
<th>Disorder</th>
<th>Epidemiology</th>
<th>Major Clinical Features in Late Life</th>
<th>Course of Illness/Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Major depression</td>
<td>Prevalence estimated at 2% in community-dwelling older adults, 10% of those seen in primary care settings or 15%–25% in nursing home residents</td>
<td>Syndrome of motor symptoms, apathy, and amotivation without depressed mood (“depression without sadness”) may be common</td>
<td>Medications, psychotherapy (especially cognitive behavior therapy) and ECT have all been shown as effective treatments</td>
</tr>
<tr>
<td>Bipolar disorder</td>
<td>Elderly patients with bipolar disorder may have late age of onset or a continuation of (sometimes undiagnosed) early-onset illness</td>
<td>Clinical picture largely similar to that in younger patients but often less severe manic symptoms</td>
<td>Mania in old age associated with significant morbidity and mortality</td>
</tr>
<tr>
<td>Anxiety disorders</td>
<td>Prevalence less than 0.1% among community dwelling older adults (5–7, selective early mortality)</td>
<td>Cognitive impairment is seen in persons with bipolar disorder, even when euthymic (2, 3)</td>
<td>Evidence of response to most mood-stabilizing medication and ECT, although lithium tolerability is often problematic</td>
</tr>
<tr>
<td>OCD and panic disorder</td>
<td>Prevalence of all anxiety disorders in adults cited as lower than that for younger adults</td>
<td>Agoraphobia is more common than specific or social phobia in older adults, but is less associated with history of panic attacks than in young adults</td>
<td>Anxiety symptoms commonly co-occur with depression (30%–70%)</td>
</tr>
<tr>
<td>PTSD</td>
<td>Phobias are the most common anxiety disorder in late life (3.1% median period prevalence rate) (13)</td>
<td>Panic disorder is rare in late life and symptoms of panic are often associated with cardiopulmonary disease (e.g., chronic obstructive pulmonary disease)</td>
<td>Response to selective serotonin reuptake inhibitors and cognitive behavior therapy has been documented for some anxiety disorders in late life</td>
</tr>
<tr>
<td>GAD has a reported median prevalence rate of 2.2%, perhaps an underestimate</td>
<td>OCD and panic disorder are less common and usually begin in young adulthood</td>
<td>Posttraumatic stress disorder (PTSD) may develop in late life after exposure to trauma/stress or be part of a chronic lifelong illness, but lower rates of PTSD among older adults suggest increased recovery with age, underreporting of Symptoms, or a healthy survivor effect due to increased mortality associated with PTSD (14)</td>
<td>Although it is common to treat older persons with anxiety using benzodiazepines, caution must be exercised, given the potential for falls and cognitive impairment</td>
</tr>
<tr>
<td>Psychotic disorders</td>
<td>Prevalence of psychotic symptoms in older adults high in one study. Up to 10% of 55-year-olds without dementia may exhibit psychotic symptoms</td>
<td>Negative symptoms tend to be more prominent among patients with onset in earlier life and positive symptoms decrease in severity. However, among persons with late onset schizophrenia (LOS), paranoid ideation is a common clinical symptom</td>
<td>Among older persons with schizophrenia clinical course can vary significantly</td>
</tr>
<tr>
<td>PTSD decreases in prevalence with age</td>
<td>Approximately 23% of patients with schizophrenia have onset after the fifth decade (3) with the oldest reported case of schizophrenia at age 100</td>
<td>Persons with very late onset schizophrenia-like psychosis (VLOSLP) often report hallucinations</td>
<td>Approximately 15%–20% of older persons with schizophrenia have a persistently deteriorating clinical course</td>
</tr>
<tr>
<td>LGS refers to persons with onset after age 40</td>
<td>Comorbid depression and nonprogressive cognitive deficits are common in older persons with schizophrenia</td>
<td>In one study 49% of older persons met criteria for remission and 17% met criteria for clinical recovery, with 13% of patients rating themselves as aging successfully (compared to 27% of age matched peers without schizophrenia)</td>
<td></td>
</tr>
<tr>
<td>Substance use disorders</td>
<td>Prevalence of tobacco smoking varies widely among older persons, depending on gender, age, and cultural background (21)</td>
<td>Smoking is associated with increased mortality, morbidity, respiratory disease, depression, cancer and reduction in instrumental activities of daily living scores</td>
<td>Older adults respond to counseling and medical advice regarding cessation. However, persons older than age 65 are less likely to receive medications for smoking cessation (23)</td>
</tr>
<tr>
<td>Prevalence of illegal drug use is uncommon but abuse of prescription and over-the-counter medications is not rare</td>
<td>Among illegal substances, the most commonly abused were opiates, followed by cocaine. Among prescription medications, benzodiazepines were most commonly abused, although prescription opiate abuse may be on the rise</td>
<td>Illegal drug use and prescription/over-the-counter medication abuse may result from self-treatment for insomnia, anxiety, pain, or depression (21)</td>
<td></td>
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<tr>
<td>Alcohol use disorders decreases with age, although older men report higher rates than older women (0.8% of men and 0.5% of women met DSM-IV criteria for alcohol dependence)</td>
<td>Alcohol abuse is seen more commonly in patients with comorbid pain and psychiatric diagnoses. Conversely, older adults with chronic medical conditions tend to restrict alcohol consumption (21). Tolerance to alcohol also decreases as a function of pharmacokinetic and pharmacodynamic changes. As the baby boomer generation ages, this problem may grow, as average alcohol consumption is greater in this generation (24).</td>
<td>For treatment of alcohol-related disorders, a combination of psychosocial treatment and psychopharmacotherapy is effective. In general, better outcomes have been reported with use of integrated care services than in specialized care settings. Study of pharmacotherapy (e.g., naltrexone and acamprosate) in older adults is limited.</td>
<td></td>
</tr>
</tbody>
</table>

**CLINICAL SYNTHESIS**
**Figure 1. The Montreal Cognitive Assessment.**

**MONTREAL COGNITIVE ASSESSMENT (MOCA)**

<table>
<thead>
<tr>
<th>Points</th>
<th>VISUOSPATIAL / EXECUTIVE</th>
<th>NAME:</th>
<th>Education:</th>
<th>Date of birth:</th>
<th>Sex:</th>
<th>DATE:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Copy cube</td>
<td>Draw CLOCK (Ten past eleven) (3 points)</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>[ ]</td>
<td>[ ]</td>
<td>Contour</td>
<td>Numbers</td>
<td>Hands</td>
<td>[ ]/5</td>
</tr>
</tbody>
</table>

**NAMING**

| Points | [ ] | [ ] | [ ] | [ ] | [ ] | [ ] | [ ]/3 |

**MEMORY**

<table>
<thead>
<tr>
<th>Points</th>
<th>Read list of words, subject must repeat them. Do 2 trials. Do a recall after 5 minutes.</th>
<th>FACE</th>
<th>VELVET</th>
<th>CHURCH</th>
<th>DAISY</th>
<th>RED</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1st trial</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>No points</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2nd trial</td>
<td></td>
<td></td>
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</tbody>
</table>

**ATTENTION**

| Points | Read list of digits (1 digit/sec.). Subject has to repeat them in the forward order | [ ] 2 1 8 5 4 | | | | | |
|--------|-----------------------------------------------------------------------------------|-----------------|---|---|---|---|---|---|
|        | Subject has to repeat them in the backward order | [ ] 7 4 2 | | | | | | |

| Points | Read list of letters. The subject must tap with his hand at each letter. No points if ≥ 2 errors | F B A C M N A A J K L B A F A K D E A A A J A M O F A A B | [ ] | | | | |
|--------|-----------------------------------------------------------------------------------------------|----------------|---|---|---|---|---|---|
|        | [ ] 4 or 5 correct subtractions: 3 pts, 2 or 3 correct: 2 pts, 1 correct: 1 pt, 0 correct: 0 pt | [ ] 93 | [ ] 86 | [ ] 79 | [ ] 72 | [ ] 65 | [ ]/3 |

**LANGUAGE**

| Points | Repeat: I only know that John is the one to help today. The cat always hid under the couch when dogs were in the room. | [ ] | | | | | |
|--------|----------------------------------------------------------------------------------------------------------------|---|---|---|---|---|---|---|
|        | Fluency / Name maximum number of words in one minute that begin with the letter F | [ ] | | | | | | |
|        | (N ≥ 11 words) | [ ] | | | | | | |
|        | [ ]/2 | | | | | | | |

**ABSTRACTION**

| Points | Similarity between e.g. banana - orange = fruit | [ ] | | | | | |
|--------|--------------------------------------------------|---|---|---|---|---|---|---|
|        | train - bicycle | | | | | | | |
|        | watch - ruler | | | | | | | |
|        | [ ]/2 | | | | | | | |

**DELAYED RECALL**

<table>
<thead>
<tr>
<th>Points</th>
<th>Has to recall words WITH NO CUE</th>
<th>FACE</th>
<th>VELVET</th>
<th>CHURCH</th>
<th>DAISY</th>
<th>RED</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Category cue</td>
<td></td>
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<tr>
<td></td>
<td>Multiple choice cue</td>
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</tbody>
</table>

**ORIENTATION**

<table>
<thead>
<tr>
<th>Points</th>
<th>Date</th>
<th>Month</th>
<th>Year</th>
<th>Day</th>
<th>Place</th>
<th>City</th>
<th>[ ]/6</th>
</tr>
</thead>
</table>

© Z. Nosredine MD Version 7.0  www.mocatest.org Normal ≥ 26/30  Total [ ]/30

Administered by: ____________________________

Add 1 point if ≤ 12 yr edu
bling symptoms of dementia are often the accompanying psychological and behavioral changes, which affect up to 80% of persons with dementia across the illness course and which frequently increase caregiver burden and the likelihood of patient institutionalization (55). Evaluation for depressive symptoms, psychosis, sleep disturbance, and agitation is a crucial part of the evaluation of cognitive disorders in older adults, and progress is being made toward establishing reliable diagnostic categorization of such neuropsychiatric symptoms of dementia (56).

There are several traditionally distinct (although admittedly sometimes overlapping) cognitive domains that can be assessed with neuropsychological testing, and abbreviated assessments of each domain are also possible in the clinical setting. Some of the most frequent cognitive domains as conceptualized by neuropsychology today are described below:

1. **Crystallized knowledge** includes abilities that are relatively unaffected by aging and are related to acquired knowledge, such as the meanings of words and general facts. Example of crystallized knowledge assessments are vocabulary tests (e.g., Peabody Picture Vocabulary Test) (57), general knowledge tests (e.g., Wechsler Scales Information Subtest) (58), or regular and irregular word reading tests (e.g., Wide Range Achievement Test) (59). Office testing of general knowledge may include inquiring about current and past presidents or famous world events, although cultural differences should always be considered in such assessments.

2. **Processing speed** decrements are among the most consistent age-related cognitive changes. Assessments include the Trail Making Test Part A (60) and Digit Symbol Coding (61).

3. **Attention** is a very broad concept encompassing a range of skills, from keeping track of information to responding to targets over long periods of time (vigilance). This may be assessed in a variety of ways such as the Continuous Performance Test (62). Office-based cognitive screens often include an assessment of attention (e.g., repeating digits or spelling words backward). Impairment in attention could drastically alter test results for any other cognitive domain, at times rendering other tests uninterpretable.

4. **Receptive and expressive language** refers to a person’s abilities to understand what is being said and respond in an appropriate manner (either orally or written), respectively. One of the most common receptive language tasks is the Token Test (ability to follow instructions) (63), with fluency tasks (category or letter fluency) (64) or naming tasks (e.g., Boston Naming Test) (65) being commonly used expressive language tasks.

5. **Visuospatial and constructional skills** encompass the ability to identify objects and shapes and to draw in a coherent manner. Most of these tasks require some amount of physical dexterity, whether constructing jigsaw puzzles (Wechsler’s Object Assembly), making patterns from colored blocks (Wechsler’s Block Design) (53), or drawing complex figures (Rey-Osterrieth Complex Figure Test) (66).

6. **Memory** includes many subtypes but neuropsychological testing typically assesses episodic memory, i.e., memory of events, times, or places related to unique personal experiences. This may be done in verbal or visual domains, over short or long delays, and with a variety of tasks (e.g., Rey Auditory Verbal Learning Task or California Verbal Learning Test) (67, 68). Working memory is generally regarded as a distinct concept akin to attention and referring more to the ability of a person to manipulate information in his or her short term memory (69). Some common tests of working memory are the Wechsler sub-scales for Digit Span and Letter-Number Sequencing (58).

7. **Executive function** is a widely used concept that is difficult to define, because it encompasses so many different concepts (e.g., set shifting, fluency, pattern recognition, mental flexibility, and inhibition) (70). Classic tests of executive function include the Wisconsin Card Sorting Test (pattern recognition and set shifting) (71), the Trail Making Test Part B (set shifting), and the Stroop Tasks (response inhibition) (72).

Cognitive testing of older adults should be conducted with several caveats in mind. For example, there is a lack of age-appropriate normative data on many tests for the oldest-old age groups and certain cultural groups. Many older people have sensory or motor impairments that may interfere with certain tasks independently from cognition per se. Subtle cognitive deficits may be very difficult to detect, especially in high-functioning or highly educated older adults. Even the best of cognitive testing may leave questions unanswered, and in these circumstances the
trajectory of change in cognition over time can be very informative.

FUNCTIONAL ASSESSMENTS

Psychiatry is perhaps unique among medical specialties in that it has traditionally emphasized functional impairment as part of its disease constructs, but functional assessments are especially germane in the evaluation of older adults and are an essential component of what distinguishes geriatrics as a subspecialty (78). Functional impairment increases with age and is often overlooked or marginalized in importance if one focuses too narrowly on tomatology. All psychiatric assessments of older adults should include a basic history of functioning in both instrumental (e.g., driving, cooking, and managing finances) and basic (e.g., grooming, eating, and walking) activities of daily living. Standardized assessments are available as well, including the Lawton Instrumental Activities of Daily Living scale (79) and the Older Americans Resources and Services (OARS) Multidimensional Functional Assessment Questionnaire (80).

Given the link between the use of most psychotropic medications and increased risk for falls (81), specific assessments of mobility may also be useful for psychiatrists caring for older adults. Perhaps the simplest and most sensitive screening for fall risk is the Timed Get-Up and Go Test (82). This test entails asking the patient to rise from a chair without using his or her arms, walk about 10 feet, turn around, and sit back down (again without using his or her arms). If the patient takes more than 10 seconds to complete the examination or exhibits obvious unsteadiness, then further evaluation of gait and balance is indicated.

MEDICAL ASSESSMENT OF OLDER ADULTS WITH PSYCHIATRIC SYMPTOMS

Nowhere is the mind-body connection more evident than in the psychiatric assessment of older adults. Although a medical assessment is an integral part of the initial evaluation for all persons presenting with psychiatric symptoms, it is especially important for older adults. Older adults are at increased risk for delirium (83), polypharmacy (84), and many medical conditions, all of which can present primarily or even exclusively with psychiatric symptoms. As providers with both psychological and medical training, psychiatrists are uniquely positioned to provide an integrated medical and psychological evaluation of the older adult presenting with behavioral or psychological symptoms. Even when a medical disorder is not the direct physiological cause of psychiatric illness, the impact of chronic medical illness on quality of life and functional ability is often apparent in the lives of older

CAPACITY/COMPETENCE

Clinicians may often be asked to evaluate the decision-making capacity of older adults. Competency usually refers to an evaluation derived from legal adjudication. Decisional capacity is the preferred term when describing a clinician’s evaluation of a patient’s decision-making abilities. Evaluation of decisional capacity is most commonly prompted when a patient declines a recommended treatment (73). Two other common scenarios involve capacity to drive and to decide on one’s living environment (74). Clinicians are required in a few and allowed in most states to report cases of dementia to motor vehicle departments. There is no clinical consensus for how to determine when a person should have his or her driver’s license revoked. Although the safety of the public and patient is clearly important, this must be balanced with the possible adverse consequences of license revocation on a person’s sense of independence and practical mobility. On-road driving tests may represent the best available option in questionable cases. Equally contentious at times is the dilemma of whether an older adult needs to enter a structured living environment (i.e., assisted living or nursing home), also reflecting basic ethical conflicts between paternalism and respect for autonomy.

Older adults are certainly at increased risk for impaired decisional capacity. Dementia is often the most prominent illness in clinicians’ minds when considering impaired decisional capacity. Psychosis and depression may also impair decisional capacity in older adults via emotional factors, such as paranoid delusions or severe hopelessness. However, psychiatric illness and dementia do not invariably impair decisional capacity (75, 76). Several qualities have been consistently described as necessary for decisional capacity. The four most commonly cited criteria are

1) consistent communication of a choice,
2) factual understanding,
3) appreciation of a situation and potential consequences of a decision, and
4) rational manipulation of information (77).

Because of the increased risk for impaired decisional capacity, it is vitally important to encourage older patients to execute advanced directives proactively before such impairments occur.

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adults and relevant to psychiatric assessment and treatment (85). For instance, medical illness is associated with increased risk for suicide among older adults (86).

As with any medical or psychiatric assessment, the best approach is to start with a thorough history. A medical history is, of course, part of any psychiatric evaluation. We will therefore highlight some special considerations to keep in mind in the initial psychiatric assessment of older adults. Always consider obtaining collateral information, particularly when patients exhibit any cognitive impairment (87). Even cognitively intact older adults may withhold or fail to recognize important historical information that family members can provide, although balancing the relative validity of contradictory perspectives requires consideration of several possible competing motivations and family dynamics.

**HISTORY OF PRESENT ILLNESS**

Given the prevalence of delirium and psychiatric illness due to a medical condition in late life, it is important for a clinician to keep these diagnoses at the top of the differential diagnosis when conducting psychiatric evaluations of older adults (88). Obtaining a thorough understanding of the time course of the psychiatric symptoms can be one of the best clues as to whether delirium or a medical condition is implicated in the etiology (e.g., increased suspicion for a medical etiology when symptom onset is acute or when new physical symptoms overlap chronologically with new psychiatric symptoms) (87). Some cases may be readily apparent (e.g., confusion and hallucinations accompanying 2 days of fever and cough associated with pneumonia), but many require a higher level of vigilance (e.g., depression associated with hypercalcemia due to an occult parathyroid adenoma) (89). There may also be complex reciprocal relationships between medical conditions and psychiatric symptoms (e.g., the interplay between anxiety and dyspnea in chronic obstructive pulmonary disease) (90).

The nature and pattern of psychiatric symptoms may also yield clues as to whether they may be due to medical illness. For example, visual, olfactory, or tactile (versus auditory) hallucinations increase suspicion for medical causes (91). Early morning awakening is a classic symptom of melancholic depression, whereas repeated nighttime awakenings often occur with nocturia due to benign prostatic hypertrophy, persistent pain, or severe gastroesophageal reflux (92). In addition, cognitive impairment accompanied by inattention and an altered level of consciousness points toward delirium, often under-recognized as a medical emergency (83).

**PAST PSYCHIATRIC HISTORY**

Most primary psychiatric illnesses (other than cognitive disorders) manifest well before old age, such that the first episode of an illness after age 40 significantly raises suspicion for an underlying medical problem (93). As in the history of present illness, one should assess whether prior symptoms or episodes could have been related to medical illness. If no prior link to medical illness is identified, it is, of course, important to remember—and remind our medical colleagues—that previous psychiatric illness does not preclude delirium or psychiatric illness due to a medical condition being part of the current presentation.

**SUBSTANCE USE HISTORY**

Although often overlooked in older adults, substance abuse, particularly alcohol and prescription drug abuse (94, 95), is an important potential contributor to medical and psychiatric problems. Thus, it is always worth evaluating whether substance intoxication, withdrawal (especially postoperatively), abuse, or dependence could be contributing to an older adult’s presenting psychiatric symptoms. A lifetime of substance use may lead to multiple medical sequelae in older adults (96, 97), including various cancers, nutritional deficiencies, and organ failure, all of which may themselves cause secondary cognitive and psychological symptoms.

**MEDICAL HISTORY**

Some of the most relevant disorders to investigate, because of their contribution to neuropsychiatric symptoms and/or their high comorbidity with psychiatric illnesses include endocrine disorders (e.g., hypo-/hyperthyroidism, hypo-/hyperparathyroidism, and diabetes mellitus) (98), cardiovascular disorders (e.g., coronary artery disease and cerebrovascular disease) (99), and rheumatological disorders (e.g., rheumatoid arthritis, osteoarthritis, and polymyalgia rheumatica) (100). Persistent pain disorders are quite common in older adults, are often comorbid with anxiety and depression, and may increase suicide risk (101, 102). Taking a sexual history may seem uncomfortable or unnecessary with older adults, but this reluctance reflects an ageist attitude. Sexual functioning is often an im-
### Table 2. Overview of Cognitive Disorders Among Older Adults

<table>
<thead>
<tr>
<th>Disorder</th>
<th>Epidemiology/Etiology</th>
<th>Major Clinical Features</th>
<th>Treatments</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Alzheimer disease (AD)</strong></td>
<td>The most common etiology of dementia, accounting for up to two thirds of cases (36)</td>
<td>Insidious onset and slowly progressive over 8–12 years after diagnosis</td>
<td>Acetylcholinesterase inhibitors (e.g., donepezil, rivastigmine, and galantamine) as well as memantine (an N-methyl-D-aspartic acid glutamate receptor antagonist) appear to offer modest cognitive and functional benefits for up to 1 year, but their value over a longer time frame is not well established (37)</td>
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<td></td>
<td>Prevalence is about 1% in persons aged 60–64 and roughly doubles every 5 years thereafter</td>
<td>Diagnosis is made clinically, as definitive diagnosis can only be made at autopsy</td>
<td>Much research is being devoted to develop true disease-modifying drugs, such as those that target the cascade of β-amyloid deposition (38)</td>
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<td>Major historical hallmarks are β-amyloid plaques and neurofibrillary tangles consisting of tau protein, beginning especially in the hippocampus/entorhinal cortex</td>
<td>Overall heritability at the population level is high, but no clinically useful genetic testing exists</td>
<td>Psychosocial interventions such as caregiver psychoeducation can help ease family burden and reduce behavioral complications from the illness (38)</td>
</tr>
<tr>
<td></td>
<td>Risk factors include advanced age, apolipoprotein e4 genotype, and lower education. Other possible risk factors include head trauma, depression, cerebrovascular disease, physical inactivity, and diabetes mellitus</td>
<td>Early symptoms include short-term episodic memory loss and word-finding difficulty</td>
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<td>Rare familial autosomal dominant cases (early-onset disease before age 65) are associated with mutations in presenilin-1 and -2 and amyloid precursor protein</td>
<td>Rapid forgetting that is not helped by cues and anoma are characteristic early features on neuropsychological testing</td>
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<tr>
<td><strong>Mild cognitive impairment (MCI)</strong></td>
<td>Definitions vary but MCI is most often characterized by memory impairment more than 1.5 SD below age- and education-matched norms along with subjective memory complaints but without functional impairments</td>
<td>Amnestic MCI is probably closely related to early manifestations of AD (39)</td>
<td>Recent trials of cholinesterase inhibitors and vitamin E failed to show significant benefit (40, 41)</td>
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<td>Some have proposed a nonamnestic subtype of MCI in which similar cognitive deficits are present in domains other than memory without functional impairment</td>
<td>Depression is commonly associated with MCI and may increase risk for conversion to AD (42)</td>
<td>Close clinical monitoring is warranted to detect conversion to dementia</td>
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<td></td>
<td>Approximately 10% of persons per year with MCI develop dementia but a substantial portion of persons with MCI remain stable or even improve(42)</td>
<td>Treating possible associated risk factors for dementia is probably helpful (e.g., treatment of risk factors for cerebrovascular disease, encouragement of mental and physical activity)</td>
</tr>
<tr>
<td><strong>Dementia of depression</strong></td>
<td>Increased age and depression severity are associated with more cognitive impairment (43)</td>
<td>Many cognitive domains may be affected by impaired attention and processing speed associated with major depression (43)</td>
<td>Antidepressant pharmacotherapy or ECT may improve cognitive symptoms associated with dementia</td>
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<td></td>
<td>Cerebral white matter hyperintensities associated with vascular disease may increase risk of cognitive impairment in depression (43)</td>
<td>Executive functions are often impaired, implicating frontal-subcortical circuits also involved in depression etiology. Memory impairments are also common although these are more likely to reflect retrieval than storage deficits</td>
<td>Antidepressants with anticholinergic side effects are best avoided to avoid worsening cognition</td>
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<td>Depression and dementia have a complex relationship with several possible explanations, including depressive symptoms as prodromal to dementia, depression as a causative factor in dementia, and shared risk factors between the two disorders</td>
<td>Poor effort and excessive worry about cognitive symptoms may be clues to depression-related cognitive impairment during cognitive testing</td>
<td>Severe cognitive impairment may hinder the effectiveness of certain psychotherapies for depression in older adults</td>
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<tr>
<td><strong>Dementia with Lewy bodies (DLB)</strong></td>
<td>Probably the second most common form of dementia (44)</td>
<td>The classic triad of symptoms includes parkinsonism (mostly rigidity and bradykinesia), fluctuating levels of consciousness, and visual hallucinations</td>
<td>No U.S. Food and Drug Administration (FDA) approved treatment but cholinesterase inhibitors do appear to have modest benefits (45)</td>
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<td>Lewy bodies (α-synuclein inclusions) are spread diffusely in the neocortex in addition to the brainstem locations characteristic of Parkinson’s disease (PD)</td>
<td>Motor symptoms and cognitive symptoms have onsets within relatively close time periods (&lt;1–2 years)</td>
<td>Parkinsonism does not respond as well to dopaminergic agents as classic PD (which also often cause psychiatric symptoms)</td>
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<td></td>
<td>Also at times characterized by amyloid plaques more classically associated with AD (46)</td>
<td>Falls, autonomic instability, and REM behavior sleep disorder may also be clues to Lewy body pathology (46)</td>
<td>High sensitivity to motor side effects with antipsychotics (probablyquetapine and clozapine are the least offensive in this regard)</td>
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<td></td>
<td>Prominent attentional, visuospatial, and executive function impairments on neuropsychological testing relative to AD, but memory impairment still often notable (46)</td>
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Continued
important component of the physical and emotional health of older adults, and many psychotropic medications may adversely affect sexual desire and/or performance.

**Medications**

One of the best contributions a physician can make to an older adult’s care is a thorough review of all his or her medications (84). Iatrogenic psychiatric symptoms can arise from medication side effects and drug-drug interactions but often go undetected (103). Medication assessments should include obtaining a full list of all medications the patient is taking including over-the-counter and herbal medications and supplements, assessing dosing schedules, determining how often patients are really taking medications (looking for over- and underuse), asking about side effects, and checking for drug-drug interactions (104). If potential problems, such as unnecessary or redundant medications or possible psychiatric side effects, are identified, working with a patient’s primary care physician or team to minimize these problems can be invaluable in improving an older adult’s medical and psychiatric condition. Particular attention should be given to minimizing the cumulative anticholinergic burden of medications in older adults, often the result of several concomitant medications whose anticholinergic effects are underrecognized (105). Geriatric care is often as much or more about removing iatrogenic culprits of illness as prescribing additional treatments.

**Examination**

Although psychiatrists typically do not do physical examinations as part of their initial medical assessment, these may be appropriate under certain circumstances. Certainly routine vital signs, includ-
ing pain severity, weight, and orthostatic blood pressure measurements, may identify medical conditions that may alter one’s diagnosis or treatment as well as potentially serious side effects of psychotropic drugs (e.g., anticholinergic or proadrenergic drug-induced tachycardia predisposing to cardiac complications, antiadrenergic-induced orthostasis predisposing to falls, and medication-associated weight gain or loss predisposing to a host of adverse medical consequences) (106, 107). Although vital signs may be an important clue to medical emergencies, one must also keep in mind age-associated changes in the physiology of vital signs (e.g., infection in the absence of fever or increased carotid sinus sensitivity) (108, 109).

Examinations for tardive dyskinesia and parkinsonism are particularly important when a clinician is prescribing antipsychotics for older adults, given that age increases the risk of these motor complications (110). The mental status examination of older adults consists largely of the same components included in the assessment of younger adults, with the notable exception that more extensive cognitive assessment, including evaluation for delirium, is often needed. Evaluation for suicidal ideation should be at the forefront of clinical assessments in light of the elevated rates of completed suicide among older adults, mostly accounted for by white men (111).

**Laboratory testing and imaging**

Depending on an older adult’s presentation and the treatment options being considered, a variety of laboratory tests may be indicated in the medical assessment of an older adult presenting with psychiatric symptoms. Laboratory tests to consider routinely obtaining include the following: 1) thyroid function tests (e.g., thyroid-stimulating hormone), because thyroid disease may cause depression, anxiety, and cognitive impairment (112); 2) electrolyte levels, because alterations of these may significantly affect the central nervous system (e.g., hyponatremia-induced delirium due to the syndrome of inappropriate antidiuretic hormone or selective serotonin reuptake inhibitor treatment) (113); 3) renal function tests (blood urea nitrogen and serum creatinine), because renal function is often reduced by age or age-associated illness, which may significantly affect the pharmacokinetics of medications (114); 4) hepatic function tests (e.g., alanine aminotransferase and aspartate aminotransferase), because psychopathological conditions may significantly contribute to chronic liver disease via alcohol use and comorbid hepatitis C infection (115); 5) complete blood count, because anemia may explain fatigue/depression, leukocytosis may point to an undetected infection, and many psychotropic drugs have hematopoietic side effects (116); 6) lipid panel and fasting glucose, particularly if a patient is already taking or considering starting medications that could cause metabolic syndrome (117); 7) rapid plasma reagin to test for syphilis and HIV antibodies if the patient has risk factors and consents, because prejudicial views of older adults may lead clinicians to dismiss their current or past sexual activity (118); 8) urine drug screen to assess for substance use and breathalyzer or blood alcohol level, especially in emergency room settings, where, again, age may inappropriately lower clinicians’ vigilance for substance use (95); 9) urinalysis, because urinary tract infection may present exclusively with mental status changes in older adults (119); 10) vitamin B₁₂ and folate levels, because deficiencies of these increase with age and may contribute to both depression and cognitive impairment (42); and 11) drug levels of any prescription drugs patients are taking, especially those with low therapeutic indices (e.g., lithium, anticonvulsants, digoxin, and tricyclic antidepressants).

Other diagnostic tests to be considered in certain situations include the following: 1) chest radiograph for respiratory symptoms, signs of delirium, or fever; 2) neuroimaging (magnetic resonance imaging or computed tomography) to evaluate for stroke, mass lesions, or normal pressure hydrocephalus (120); 3) electrocardiogram for acute mental status change, cardiorespiratory symptoms, or consideration of psychotropic agents that may alter cardiac conduction (e.g., lithium, tricyclic antidepressants, and certain antipsychotics) (121); 4) electroencephalogram for paroxysmal symptoms that could be due to seizures, unusual or subacute dementias (e.g., Creutzfeld-Jacob disease), or diagnostic confusion between delirium versus dementia (although generalized slowing is present in both delirium and more advanced cases of dementia) (122); and 5) lumbar puncture in patients with atypical cognitive disorders, fever without a clear etiology, or suspected neurosyphilis (123).

Many invasive (e.g., lumbar puncture) or expensive (e.g., magnetic resonance imaging) tests may be unnecessary with a careful history and physical examination. Although the use of neuroimaging is clinically routine in the assessment of delirium, dementia, and late-onset psychiatric disorders, there is debate as to its cost-effectiveness and clinical yield in the absence of historical (e.g., acute onset) or physical examination findings (e.g., focal neurological symptoms) that raise suspicion for certain neurological disorders (124, 125). The explosion of research in functional neuroimaging has yet to yield
significant clinical applications, although this is anticipated in upcoming years with promising techniques such as in vivo amyloid imaging (126). Currently, the only psychiatric application of functional neuroimaging approved by Medicare is the use of positron emission tomography in differentiating Alzheimer-type versus frontotemporal dementia in patients with clinically unclear illness (127).

**Psychosocial Assessment of Older Adults**

Although medical disorders and neurobiological changes associated with aging are at the forefront of considerations in psychiatric assessments of older adults, a balanced biopsychosocial perspective remains crucial as well. The comfort level of older adults (at least the current cohort) with mental illness and psychiatric evaluation must be considered to develop the rapport needed for any other aspect of assessment (128). Older adults also tend to face somewhat unique psychosocial stressors that may have tremendous relevance for the symptoms at hand. For instance, acting as a caregiver for a disabled relative is associated with high rates of depression and is often used in research as a prototypical model of stress (129). Accumulating medical (and at times psychiatric or cognitive) illnesses often result in disability and loss of independence (including forced moves to senior living communities) that challenge the resilience and self-concepts of older adults. Other forms of loss, including deaths of friends and family, are common, and grief reactions may ensue that warrant careful attention for clinically significant depressive symptoms (130). DSM-IV-TR (131) outlines several features that are believed to help distinguish normal versus abnormal bereavement, such as suicidal ideation, persistent worthlessness, and severe, persistent functional impairment. Such losses and personal disabilities may trigger psychological struggles regarding one’s own mortality that may be very relevant in psychotherapy with older adults, but clinicians often avoid this topic because of discomfort (132). Another sometimes surprising stressor for older adults is retirement, which may challenge persons whose self-identity and structured activities center around their occupation (133). Although these challenges confronting older adults may seem daunting, it is also worthwhile to note the positive coping strategies used by many older adults so that clinicians also work to facilitate the person’s innate strengths. Possible psychological benefits of increased age include, on average, better emotional regulation (134) and, according to many cultural beliefs, increased wisdom (135).

For these and other reasons, social support is an important predictor of the health outcomes of older adults (136, 137). Psychiatric assessment and care of older adults thus requires careful attention to social networks and often includes family members in the assessment and treatment of the older adult in a manner akin to that used for children and adolescents (with important similarities and differences in the dynamics encountered, including struggles for autonomy and role reversals). The increasing diversity of the aging population in the United States also warrants increasing attention to culturally competent psychiatric assessments, including awareness of linguistic barriers, differing cultural concepts of both aging and illness, and possible roadblocks to health care access (138).

**Conclusions**

In summary, psychiatric assessment of older adults is both challenging and rewarding. Therapeutic nihilism and ageism may taint the enthusiasm some clinicians have for working with older adults affected by neuropsychiatric illness, but careful attention to the issues summarized briefly in this review can help ensure that such clinical experiences are rewarding for both older patients and the clinicians who care for them. Psychiatric assessment of older adults should remind psychiatrists of why they are often called upon to set the example for biopsychosocial care in clinical medicine. Medical comorbidity requires attention to clinical issues that overlap with other fields of medicine, unique psychosocial stressors, and the stigma of mental illness associated with aging require careful attention to the human relationship between clinician and patient, and the importance of social support and extended family involvement call for a broad, systems-based approach to the psychiatric care of older adults. Integrating these various components of assessment and diagnosis will be crucial for the wide variety of psychiatrists who will be increasingly called upon to care for the rapidly expanding population of older adults.

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NOTES