# Are Mental Status Questionnaires of Clinical Value in Everyday Office Practice?

## An Affirmative View

Gregg Warshaw, MD
*Cincinnati, Ohio*

The more we know about the problems of old age, the more exciting is the potential contribution of the family physician. Many clinical problems of the elderly result not from normal biological aging processes, but from disease and the resulting loss of function. The contribution of the family physician, in particular, to preventive care for the elderly holds great promise. Although few data exist to support traditional secondary prevention,[1] there is evidence to suggest that considerable unreported and undetected symptomatic illness exists in the community among older patients. Problems with vision, hearing, dentition, depression, alcoholism, sleep, and dementia are all common. These problems result in significant disability, but older patients are not likely to bring them to the attention of their physician, and in many cases physicians do not routinely evaluate their older patients for such functional problems.

Dementia and related cognitive problems represent a particular challenge in office practice. They are common among the elderly, yet traditional criteria for inclusion in secondary prevention programs are not satisfied.[2] Therapeutic measures cannot cure patients with Alzheimer's disease, yet clinical experience suggests that early identification and intervention can improve patient function and quality of life. This paper will define the dementia problem, review the possible areas for secondary or tertiary preventive interventions, and describe a mental status questionnaire appropriate for use in office practice. Although definitive data are not yet available, the benefits appear to outweigh the risks for routine case finding of cognitive loss among the elderly.

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*From the University of Cincinnati College of Medicine, Cincinnati, Ohio. Requests for reprints should be addressed to Gregg Warshaw, MD, Department of Family Medicine, 231 Bethesda Ave, Cincinnati, OH 45267-0582.*

### DEMENTIA: A COMMON PROBLEM

Impaired memory, especially recent memory, typically represents the initial clinical syndrome of dementia. Other changes include impaired judgment, loss of insight, flattening of affect, and personality changes. A patient presenting with loss of cognitive function should be evaluated for acute delirium as well as reversible causes of chronic memory loss.

Two common causes of chronic confusion are depression and side effects of prescribed or over-the-counter medications. Medical problems common to the elderly (eg, congestive heart failure, chronic obstructive pulmonary disease, thyroid disease) may also be accompanied by chronic cognitive impairment.[3] After careful evaluation, it is generally found that 80% to 90% of dementia in the elderly can be attributed to Alzheimer's type senile dementia or multi-infarct dementia.

Although the estimated prevalence of dementia in patients aged over 65 years is 5%, this figure rises steeply with age, and reaches 20% to 25% in patients aged over 80 years. The lifetime risk of dementia is approximately 1 in 3 for men who survive to 85 years.[4] Women are probably not more prone to develop dementia, but more women than men survive into old age, where the risk is highest. A recent epidemiologic study in the independent living areas of a California retirement community suggested that even these estimates may be low. Using detailed cognitive testing, it was calculated that Alzheimer's disease may be present in 15.3% of individuals aged over 65 years, and in 35.8% of those aged 80 years or older.[5]

Recognition of significant cognitive loss is not always easy. Most physicians are familiar with elderly patients who can carry on a coherent casual conversation but would do poorly on a mental status test. Several studies have suggested that without formal screening, physicians may not recognize significant memory loss.[6,7]

## SCREENING FOR MEMORY PROBLEMS

Alzheimer's disease, the most common cause of memory problems in the elderly, is not curable. It is difficult to justify early detection of a disease without a specific treatment. Even for those causes of cognitive problems that may be treatable (eg, depression, drug effects, thyroid disease), there is no evidence that an asymptomatic period exists during which intervention could be more effective. Until the cause of Alzheimer's disease is understood and a treatment is shown to be effective early in the course of the illness, the use of mental status testing for the secondary prevention of dementia cannot be justified.

## CASE FINDING AND TERTIARY PREVENTION

Once the diagnostic evaluation for a dementia is complete, many physicians abandon patients who have chronic disease labeled "untreatable."[8] This action rules out the possibility of tertiary prevention, which can be quite helpful to the older dementia patient. Tertiary prevention may reduce disability through the aggressive management of an established disease. The prevention or improved management of delirium, accidents, caregiver stress, and financial and legal problems may all benefit dementia patients and their relatives. Intervention for these complications is the strongest argument for the early detection of memory loss in the office setting.

### Delirium

Patients with dementing illnesses are at a high risk of developing a delirium.[9] Delirium has numerous causes in the elderly, some of which are iatrogenic. Iatrogenically induced delirium can often be avoided if the family physician is aware that the patient is at high risk. For instance, certain medications typically precipitate delirium. Psychoactive medications pose a particular problem and should be avoided if at all possible in patients with dementia. Hospitalization can also precipitate delirium. A common description by family members of the onset of Alzheimer's disease is that "the problem began after Mom had her gallbladder out." This example represents a delirium occurring during the hospitalization. The patient may have an early, undetected dementia, increasing the likelihood that a delirium will occur. The hospitalization draws attention to the patient's cognitive loss, and such delirium episodes may lead to significant morbidity.[10] If the patient is recognized as being at high risk before hospitalization, efforts can be made to reduce the risk of delirium. A simple intervention for the hospitalized Alzheimer patient is to encourage family members to stay with the patient in the hospital or to obtain private duty nursing.

### Accidents

Accidents and resulting injury are sometimes associated with dementia.[11] Early detection of dementia through case finding can alert the physician to provide anticipatory guidance designed to reduce the risk of accidents in the home.

Another public health issue highlighting the urgent need for early detection of dementia is the potential danger of cognitively impaired automobile drivers.[12] Family physicians are in a key position to advise families and licensing authorities about the competence of elderly drivers with possible dementia. It is not unusual for the medical history to reveal numerous automobile accidents during the months or even years preceding recognition of a cognitive loss.

### Caregiver Stress

Individuals with undetected dementias may put others at risk. Caregiver stress is a recognized outcome of living with a demented individual. Recent research documents the health consequences of the caregiver role, and interventions are being developed and tested.[13] Caregivers cannot be helped until their roles are elucidated, and it is common for caregivers to suffer in silence until the demented relative is diagnosed. This occurrence is exemplified by the common clinical presentation of dementia coincident with the sudden death of a spouse. It is not unusual for an unsuspecting child to arrive to help a grieving mother upon the death of her husband only to discover that she cannot remember that her husband is dead. Early identification of dementia could prevent such untimely and traumatic discovery of impairment.

### Financial and Legal Problems

Patients with early dementias do not always retain good judgment. Poor financial and investment decisions can lead to unfortunate losses. In addition, undetected and unprotected demented adults may be financially exploited by others. Alzheimer patients have been known to give their social security checks to strangers who come to the front door. Financial and legal planning is also an essential part of an effective treatment plan for an older patient with dementia. It is usually much simpler, less expensive, and less stressful for the affected individual to give power of attorney to a relative than to resort to guardianship procedures.[14] This approach, however, requires that the family receive such advice early in the course of the

disease, when the patient can still voluntarily grant a power of attorney. Finally, financial arrangements for long-term care of dementia victims and their spouses and families require years of advance planning. Physicians do not need to advise on financial or legal issues, but should strongly encourage that legal and financial consultations be obtained from appropriate professionals.

The benefits of early detection of dementias in terms of preventing delirium, accidents, caregiver stress, and legal and financial difficulties have not yet been documented, and additional research in this area is needed. Nonetheless, the potential advantages for the well-being of both patient and family are readily apparent.

## MENTAL STATUS QUESTIONNAIRES

If a physician does decide to screen elderly patients in the office for early symptoms of dementia, several instruments are available. A number of brief standard mental status questionnaires have been developed to distinguish patients with cognitive problems from those who are functioning normally. Dementia is a complex syndrome, and while these tests can identify cognitive deficits, they cannot provide precise diagnoses of the underlying case of the deficit. A thorough discussion of these instruments is beyond the scope of this paper, but can be found in recent reviews.[15,16] By way of example, however, one popular and well-researched questionnaire will be described.

The Mini-Mental State Examination (MMSE)[17] is a screening instrument of known reliability and validity that detects cognitive impairment. It is easily administered, well tolerated by older patients, and can be completed in less than 10 minutes. The MMSE has been used with community populations, medical outpatients, and in longitudinal studies of patients with Alzheimer's disease. It assesses immediate and delayed recall, as well as language and visuographic ability. The MMSE can be properly administered by clinical or lay personnel with little training. The maximum score on the MMSE is 30. The mean score for normal elderly persons is 27.6. Patients with dementia, depression with cognitive impairment, and affective disorders form a continuum with mean scores of 9.7, 19, and 25, respectively.

A review of sensitivity, specificity, and predictive values for the MMSE is drawn from several published studies.[15] These data consider a score of 23 or lower as an indication of possible dementia. Test–retest reliability has not fallen below 0.89, and interrater reliability has not fallen below 0.82 in several studies.[18] Sensitivity has been reported to be between 50% and 87%. Specificity has repeatedly been demonstrated to be 90%. Reported predictive values have ranged from 60% to 93% for positive predictive value, and between 77% and 95% for negative predictive value. A recent study has also suggested the usefulness of the MMSE to follow the "transitional" health status of patients with known progressive dementias.[19]. As with other psychological screening instruments, familiarity with the MMSE can increase the clinician's ability to interpret the results.

## SUMMARY AND CONCLUSIONS

The prevalence of dementia in older people, the poor clinical recognition of this problem by physicians, the opportunities for tertiary prevention, and the availability of reliable and convenient screening instruments all support the value of mental status questionnaires in everyday office practice. These instruments may also be helpful in longitudinal evaluation of patients with known progressive dementias. The case for screening will be substantially stronger when an effective treatment for Alzheimer's disease is found.

To avoid inappropriate labeling of patients, abnormal results on a mental status questionnaire must be interpreted with caution. A thorough history is the most effective diagnostic strategy to differentiate progressive dementia from a delirium or a reversible chronic problem. An abnormal score on a mental status screening instrument should never be equated with the diagnosis of Alzheimer's disease.

To document the usefulness of mental status screening in office practice, more research is clearly needed. While the value of traditional secondary prevention maneuvers may decrease in the very old,[20] routine, careful assessment of function may prove to assist the family physician in offering important benefits to elderly patients and their families.

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# An Opposing View

Thomas V. Jones, MD, and Mark E. Williams, MD
*Chapel Hill, North Carolina*

Although it is widely believed that most organic mental disorders in patients seen in primary care settings go undetected, undiagnosed, and untreated,[1,2] routine use of mental status questionnaires in everyday office practice is not the solution to this problem. This paper critically explores purported benefits of mental status questionnaires in primary care and discusses pitfalls of such an approach.

Mental dysfunction is a serious problem in primary care, particularly among older patients. This disability produces enormous costs: deterioration of the individual's sense of well-being and self-esteem, productivity, and independence; increased stress and caregiving responsibility for family and friends; and greater use of health services and community resources. Because quality of life and the capacity for independent living depend so heavily on adequate cognitive performance, accurate assessment of cognition is essential in primary care; errors of omission and commission can lead to unfortunate and far-reaching consequences.[3]

Cognitive screening instruments, commonly known as mental status questionnaires, are used increasingly to assess the presence and severity of cognitive impairment. It is important to recognize, however, that mental status questionnaires give no information beyond that which can be ascertained from a careful and comprehensive clinical evaluation. Indeed, most experts in family medicine, internal medicine, geriatrics, psychiatry, and neurology point out that "screening devices" cannot substitute for a careful history and examination to recognize the presence, cause, and appropriate treatment of cognitive impairment.[4] The incremental value of mental status questionnaires in office practice therefore depends primarily on the state of routine care. If routine care is ineffective, care is likely to improve with use of a mental status questionnaire; if routine care is effective, it is unlikely care will improve with use of a questionnaire.

The purposes of comprehensive assessment of cognition are to distinguish between "normal" and "abnormal" cognitive function, to determine once a problem is detected whether it fits into a recognizable pattern or general category, to begin to formulate a prognosis, and to gather any and all information relevant to improving or preserving mental function. In this context, applications for mental status questionnaires are examined in office practice.

Mental status questionnaires are sometimes used in primary care for the following purposes: screening either all patients or those in high-risk subgroups for cognitive impairment, documentation and quantification of suspected cognitive dysfunction, and monitoring the effects of time and treatment on cognition.

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*From the Department of Medicine, and the Program on Aging, School of Medicine, University of North Carolina, Chapel Hill. Requests for reprints should be addressed to Thomas V. Jones, MD, Department of Medicine, 5039 Old Clinic Building, University of North Carolina, Chapel Hill, NC 27599.*

## SCREENING OR CASE FINDING

Screening is defined as inviting the general public or requiring specific groups to undergo tests so that individuals can be separated into groups with higher and lower probabilities of disease.[5] Practicing physicians use mental status tests, not for screening, but for case finding, defined as detection of early disease in patients seeking help for unrelated, intercurrent illnesses. In the absence of guidelines for evaluating the appropriateness of using specific tests or procedures for case finding, guidelines already widely accepted for screening[6] will be used to examine case finding with mental status questionnaires.

Organic mental disorders commonly seen in primary care settings, such as dementia, delirium, and cognitive dysfunction associated with depression (pseudodementia), certainly have a significant effect on both quality and quantity of life.[7,8] Their incidence and prevalence are clearly sufficient to justify the cost of screening.[7,8] Moreover, if "symptomatic" is used to mean any subjective reports of illness from the patient or someone who knows the patient, it has been shown that some mental status questionnaires detect some signs of cognitive impairment in some asymptomatic individuals ("presymptomatic" is a more accurate term). Furthermore, acceptable treatment is available for most patients with the organic mental disorders discussed here, provided treatment focuses not only on the disease but on the illness as well.[9] Finally, although controversy remains, most patients do not object to the questions on widely used mental stress tests.[10]

There is no evidence that detection and treatment during the presymptomatic period alters the neuropathologic processes in dementing illnesses,[11] although controlling blood pressure and smoking cessation may improve the outlook for multi-infarct dementia.[12] The cognitive function of some patients with "irreversible dementia" improves following treatment of comorbid conditions.[13] With delirium and pseudodementia the relatively high risk of mortality and morbidity and the greater opportunity for reversibility makes early detection more compelling, but little research has addressed this situation. Although it is intuitive that early recognition and diagnosis would allow family members and caregivers the opportunity to benefit from support and self-help resources to prepare for stresses that occur during the course of organic mental disorders, there is little scientific evidence to support this position. Furthermore, there is no evidence that treatment of dementia, delirium, and pseudodementia during the presymptomatic phase leads to superior outcomes compared with treatment delayed until symptoms are reported.

The use of mental status questionnaires (or for that matter, any kind of mental status examination) for case finding fails to meet the aforementioned guidelines. Advocates of mental status questionnaires might assert that, in everyday medical practice, the physician should use the best available knowledge to help patients, even when complete proof of efficacy is wanting.[14] We could not agree more, but in our judgment the best available information does not support their use. This issue is not simply one of the suitability of mental status questionnaires for screening or case finding. Other major problems are created with their use, including inaccuracy and potential for misuse and misinterpretation of their clinical utility.

## A QUESTION OF ACCURACY

What about the accuracy of mental status questionnaires? No one instrument is considered to be adequately sensitive to mild cognitive impairment across a range of cultural backgrounds and premorbid intelligence and educational levels. Two recent critical reviews arrived at similar conclusions: mental status questionnaires probably do not increase the level of diagnostic accuracy achieved by history and physical examination alone, and more sensitive and specific instruments are needed. The authors concluded that among the commonly used mental status tests they evaluated, all have substantial false-negative rates that primarily reflect poor performance in patients with mild cognitive impairment and those with focal neurological lesions.[15,16]

There are many reasons to question the accuracy of mental status questionnaires. First, until recently the lack of biochemical or physiological markers for organic mental disorders and the imprecision of pathological and clinical terminology made it uncertain what mental status questionnaires were supposed to detect. From a methodologic standpoint, there are several other shortcomings.

Conceptually, test items often represent a summation of multiple cognitive functions as well as potentially confounding influences of normal aging, physical comorbidity, and demographic factors. Moreover, some content areas that seem important based on neuropsychological studies of dementia, such as constructional apraxia and agnosia, are neglected. Scoring generally distinguishes only whether an item is completed correctly; information revealed by how much time and effort is expended on an item and how a person succeeds or fails is lost. Thus findings on a mental status questionnaire are roughly analogous to ordering a complete blood count and receiving a laboratory report stating the hemoglobin and hematocrit are abnormal, without information on the direction and magnitude of the abnormality. With respect to what is asked, many questions fail to assess a range of intellectual levels, leading to "floor" and "ceiling" effects.[17] In addi-

tion, questions often reflect cultural, socioeconomic, and sexual biases. Information about allocation of item weights and determination of optimal cutoff points, a critical step to adjust scoring for potential confounders, is often unavailable. Most tests simply treat all items equally.

Many problems arise from the way in which validation studies have been performed. Many instruments have been tested for concurrent validity but not predictive validity.[17] In other words, performance on mental status tests was compared with clinical judgment of experts who examined patients at the same time, or with performance on some other mental status instrument. Often lacking is determination of how well the test predicts or agrees with changes over time or some biochemical, physiological, or radiological procedure. A further difficulty has arisen from the selection of populations for validation studies. Studies have often consisted of assessing the ability of the mental status test to distinguish patients in a control group from an approximately equal number of patients with an organic mental disorder. In addition, persons with significant mental and physical comorbidity have generally been excluded from control groups, and impaired groups have often consisted of moderately to severely affected patients but have failed to include mildly impaired patients. These two phenomena tend to falsely elevate correlation coefficients between the mental status test score and the reference standard as well as the predictive value of the mental status test.

The reliability of many commonly used mental status questionnaires has not been adequately evaluated. Assessment of interrater and test–retest reliability is critical yet infrequently measured. It is even quite possible that a mental status test administered in different settings—for example, clinic vs home—may yield significantly different results.

With the problems described above, it must be asked whether it is wise to use a mental status questionnaire, and if so, how to use one during the course of everyday office practice. Experts in the fields of family medicine, internal medicine, geriatrics, psychiatry, and neurology have failed to reach a consensus in answering such fundamental questions as, "Which test? When should it be used? For what purposes should it be used? What do the results mean?" How then can one expect clinicians to follow recommendations made to users of any standardized assessment instrument—the purpose of the instrument must be carefully delineated; the user must understand the target population, including the incidence and prevalence of the condition being sought, to estimate the predictive value; the user must review the validity and reliability of different instruments to be able to choose the one most appropriate for his or her needs; and once a particular instrument is selected, the user should consider validating it against other psychometric and neuropsychological tests—so that an appropriate adjustment of the cutoff score can be made to maximize accuracy?[18]

## THE RISK OF HARM

What are the possible consequences of misusing mental status questionnaires in everyday office practice? None of the questionnaires are diagnostic, yet there is no reassurance that physicians do not use them that way. Indeed, very little is known about how physicians use the information from mental status tests. Problems easily arise if scores on a mental status questionnaire are given undue weight by a physician formulating a differential diagnosis and treatment plan. A false-positive score could label a patient, which can be distressing enough to lead to functional decline.[19] Moreover, in pursuit of the underlying cause of impairment detected with a mental status questionnaire, the individual may be subjected to unnecessary, expensive, and potentially harmful testing. Finally, other comorbid medical problems could remain undetected if a patient's symptoms are all attributed to cognitive impairment. A false-negative, on the other hand, could lead to false reassurance that the patient is not suffering from any cognitive impairment.

## A QUESTION OF UTILITY

A fundamental question remains: Why aren't mental status questionnaires more helpful? The answer is they simply do not address some of the most clinically relevant issues, such as, Can this person function in a safe and satisfying manner by appreciating and acting on risks and challenges in his or her surroundings? Can this person care for himself or herself, and participate meaningfully in life? Tools designed for global purposes such as screening for abnormal mental status in large populations (which incidentally, they do quite well) should not be expected to address specific personal concerns of individual patients and their family members, friends, and caregivers.[3,20] Fortunately, the clinician has a wealth of relevant information, gathered from subtle observations, careful questioning, and the physical examination, that helps greatly in making diagnostic and management decisions. For example, the clinician has the opportunity to learn not only what the individual can and cannot do when faced with pertinent cognitive tasks and challenges, but also much about how the person succeeds or fails. Discounting the value of this information in favor of the mental status test score can lead to serious errors.

## CONCLUSIONS

In summary, routine use of mental status questionnaires in everyday office practice, on first glance, might seem an easily implemented, safe, and effective approach to solving a well-documented problem in primary care. On closer inspection, however, several conclusions can be made. First, the use of mental status tests fails to meet guidelines for screening or case finding. Second, existing instruments do not have sufficient accuracy to reliably detect cognitive deficits that are not evident clinically during a careful and comprehensive interview and examination. Third, it seems unwise and premature to recommend something for everyday office practice when there is so little information on the risk-benefit ratio of mental status questionnaires, and experts in interested academic disciplines cannot even reach some reasonable level of agreement on important issues surrounding their use. Finally, while there seems to be widespread belief that a complete history and physical examination yield a rich and accurate assessment of cognitive function, surprisingly little is known about the efficacy of this approach, how to teach such a skill, and how to promote its use in the primary care setting. This area deserves at least as much attention as is now paid to the idea of simply getting physicians to administer a mental status questionnaire to their patients.

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