**Our Mission:** Helping to prepare Iowa’s health practitioners to care for our growing population of elders. E-NEWS is one of our methods of teaching through technology.

Each month, E-NEWS delivers abstracts from current multidisciplinary healthcare journal articles related to a specific geriatric topic. This month’s E-NEWS focuses on **SCREENING FOR AND DIAGNOSING DEMENTIA**.

**SCREENING FOR AND DIAGNOSING DEMENTIA**

In this issue of the E-NEWS, you will find abstracts for:

- A study that evaluates a brief screening battery for Alzheimer’s disease in illiterate and literate patients, the Cognitive State Test (COST).
- An article that discusses the role of screening and detection of cognitive impairment in improving dementia care.
- A study that aims to validate the Montreal Cognitive Assessment (MoCA) for screening mild cognitive impairment and Alzheimer’s disease.
- An article that provides practical guidelines for the recognition and diagnosis of dementia.
- An article that reviews brief cognitive screening instruments.
- A study that seeks to determine the diagnostic accuracy of the Alzheimer's questionnaire (AQ) in identifying mild cognitive impairment and Alzheimer's disease.
- A study that compares the Mini-Cog, the Mini-Mental State Examination (MMSE), and the Clock Drawing Test.
- A study that examines the diagnostic accuracy of the MMSE in detecting Alzheimer's disease in ethnically diverse and highly educated individuals.

Background: The aim was to develop a brief screening battery, Cognitive State Test (COST), for detecting the presence of dementia in both illiterate and literate patients and to assess its validity and reliability. Methods: COST is a cognitive screening tool that consists of almost all cognitive domains. It takes 5-7 minutes to administer, and has a maximum score of 30. Data were obtained from 114 healthy volunteers and 74 Alzheimer dementia (AD) patients. Subjects’ age divided into two groups: A1: <65 years; and A2: ≥65 years and their education level divided into three groups: E1: illiterate; E2: 1-5 years; and E3: ≥6 years. For assessing concurrent validity, total COST score was compared to the Clinical Dementia Rating (CDR), the Mini Mental State Examination (MMSE), the Montreal Cognitive Assessment (MoCA), and Basic Activities of Daily Living (BADL). Sensitivity and specificity were determined through a discriminant analysis using the Receiver Operating Characteristic (ROC) curves. Internal consistency was measured using Cronbach’s coefficient α.

Results: For normal and AD subjects, mean age was 64.9±9.8 years (50 women and 64 men) and 67.2±13.2 years (55 women and 19 men), respectively. Schooling ranged from 0-15 years (mean 5.7±4.2 and 3.3±3.8 years, respectively), and 21 and 37 subjects were illiterate, respectively. The COST significantly and positively correlated with MMSE and MoCA, and significantly and inversely correlated with CDR, the Geriatric Depression Scale (GDS), and BADL. In the E1, E2, and E3 education groups, the optimal cut-off points of COST chosen for diagnosis of AD were 23/24 (sensitivity: 81%, specificity: 99%), 24/25 (sensitivity: 75%, specificity: 86%), and 26/27 (sensitivity: 77%, specificity: 84%), respectively. When illiterate and literate subjects were then pooled, the optimal cut-off score of COST was 24/25, which yielded a sensitivity of 81% and a specificity of 87%. Reliability of the COST was good (0.86). Conclusion: The COST is a valid and reliable screening battery for detection of dementia both in the illiterate and the literate Alzheimer patients.

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The value of screening for cognitive impairment, including dementia and Alzheimer’s disease, has been debated for decades. Recent research on causes of and treatments for cognitive impairment has converged to challenge previous thinking about screening for cognitive impairment. Consequently, changes have occurred in health care policies and priorities, including the establishment of the annual wellness visit, which requires detection of any cognitive impairment for Medicare enrollees. In response to these changes, the Alzheimer’s Foundation of America and the Alzheimer’s Drug Discovery Foundation convened a workgroup to review evidence for screening implementation and to evaluate the implications of routine dementia detection for health care redesign. The primary domains reviewed were consideration of the benefits, harms, and impact of cognitive screening on health care quality. In conference, the workgroup developed 10 recommendations for realizing the national policy goals of early detection as the first step in improving clinical care and ensuring proactive, patient-centered management of dementia. Copyright © 2012 The Alzheimer’s Association.

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The Montreal Cognitive Assessment (MoCA) was recently proposed as a cognitive screening test for milder forms of cognitive impairment, having surpassed the well-known limitations of the Mini-Mental State Examination (MMSE). This study aims to validate the MoCA for screening Mild Cognitive Impairment (MCI) and Alzheimer disease (AD) through an analysis of diagnostic accuracy and the proposal of cut-offs. Patients were classified into 2 clinical groups according to standard criteria: MCI (n=90) and AD (n=90). The 2 control groups (C-MCI: n=90; C-AD: n=90) consisted of cognitively healthy community dwellers selected to match patients in sex, age, and education. The MoCA showed consistently superior psychometric properties compared with the MMSE, and higher diagnostic accuracy to discriminate between MCI (area under the curve=0.856; 95% confidence interval, 0.796-0.904) and AD patients (area under the curve=0.980; 95% confidence interval, 0.947-0.995). At an optimal cut-off of below 22 for MCI and below 17 for AD, the MoCA achieved significantly superior values in comparison with MMSE for sensitivity, specificity, positive predictive value, negative predictive value, and classification accuracy. Furthermore, the MoCA revealed higher
sensitivity to cognitive decline in longitudinal monitoring. This study provides robust evidence that the MoCA is a better cognitive tool than the widely used MMSE for the screening and monitoring of MCI and AD in clinical settings.


To date, user-friendly, practical guidelines for dementia have not been available for busy family physicians. However, the growing number of patients with dementia means that primary care physicians will have an increasingly important role in the diagnosis and subsequent management of dementia. This article provides practical guidance for the recognition and diagnosis of dementia and is aimed at family physicians, who are usually the first clinicians to whom patients present with dementia symptoms. Because Alzheimer disease (AD) is the most common form of dementia, this condition is the main focus of this article. We review the pathophysiology of AD and discuss recommended diagnostic protocols and the importance of early diagnosis. An AD diagnostic algorithm is provided, with clearly defined steps for screening and diagnosing AD and assessing daily functioning, behavioral symptoms, and caregiver status.


OBJECTIVE: To review the recent literature on cognitive screening with a focus on brief screening methods in primary care as well as geriatric services. DESIGN: The Medline search engine was utilized using the keyword search terms 'cognitive screening', 'cognitive assessment', and 'dementia screening' limiting articles to those published in English since 1998. RESULTS: 679 abstracts were retrieved. Articles focusing on attitudes toward cognitive screening, current screening practices, promising new instruments and more recent updates contributing significant information on established instruments were retrieved and incorporated into this review. Reference lists were reviewed for relevant contributing articles. Instruments recommended from previous reviews of cognitive screening and those identified in surveys as most frequently used in primary care and geriatric settings were emphasized in this review. CONCLUSIONS: Dementia remains under-diagnosed in the elderly population. Despite significant limitations, the Mini Mental State Exam remains the most frequently used cognitive screening instrument. Its best value in the community and primary care appears to be for the purpose of ruling out a diagnosis of dementia. Instruments such as the Mini-Cog, Memory Impairment Screen (MIS), and the General Practitioner Assessment of Cognition (GPCOG) have consistently been recognized for utility in primary care. The clock drawing test (CDT) and newer instruments such as the Montreal Cognitive Assessment (MoCA) and the Rowland Universal Dementia Assessment Scale (RUDAS) are gaining credibility due to improvements in sensitivity, addressing frontal/executive functioning, and decreasing susceptibility to cultural and educational biases.


BACKGROUND: accurately identifying individuals with cognitive impairment is difficult. Given the time constraints that many clinicians face, assessment of cognitive status is often not undertaken. The intent of this study is to determine the diagnostic accuracy of the Alzheimer's questionnaire (AQ) in identifying individuals with mild cognitive impairment (MCI) and AD. METHODS: utilizing a case-control design, 300 [100 AD, 100 MCI, 100 cognitively normal (CN)] older adults between the ages of 53 and 93 from a neurology practice and a brain donation program had the AQ administered to an informant. Diagnostic accuracy was assessed through receiver-operating characteristic analysis, which yielded sensitivity, specificity and area under the curve (AUC). RESULTS: the AQ demonstrated high sensitivity and specificity for detecting MCI [89.00 (81.20-94.40)]; [91.00 (83.60-95.80)] and AD [99.00 (94.60-100.00)]; [96.00 (90.10-98.90)]. AUC values also indicated high diagnostic accuracy for both MCI [0.95 (0.91-0.97)] and AD [0.99 (0.96-1.00)]. Internal consistency of the AQ was also high (Cronbach's alpha = 0.89). CONCLUSION: the AQ is a valid informant-based instrument for identifying cognitive impairment, which could be easily implemented in a clinician's practice. It has high sensitivity and specificity in detecting both MCI and AD and allows clinicians to quickly and accurately assess individuals with reported cognitive problems.

BACKGROUND: The aim of this study was to compare the screening value of the Mini-Cog, Clock Drawing Test (CDT), Mini-Mental State Examination (MMSE) and the algorithm MMSE and/or CDT to separate elderly people with dementia from healthy depending on test time, type and severity of dementia, and demographic variables in a German Memory Clinic. METHODS: Data from a heterogeneous patient sample and healthy participants (n = 502) were retrospectively analyzed. Of the 438 patients with dementia, 49.1% of the dementia diagnoses were Alzheimer's dementia and 50.9% were non-Alzheimer's dementia. Sixty-four participants were classified as cognitively unimpaired. The CDT and an extraction of the 3-item recall of the MMSE were used to constitute the Mini-Cog algorithm. RESULTS: Overall, the Mini-Cog showed significantly higher discriminatory power (86.8%) than the MMSE (72.6% at a cut-off ≤ 24 and 79.2% at ≤ 25, respectively) and CDT (78.1%) (each p < 0.01) and did not perform worse than the algorithm MMSE and/or CDT (each p > 0.05). The specificity of the Mini-Cog (100.0%) was similar to that of the MMSE (100.0% for both cut-offs) and CDT (96.9%) (p = 0.154). For all age and educational groups the Mini-Cog outmatched the CDT and MMSE, and was less affected by education than MMSE and less susceptible for the dementia stage than the CDT. CONCLUSION: The Mini-Cog proved to have superior discriminatory power than either CDT or MMSE and is demonstrated to be a valid "short" screening instrument taking 3 to 4 minutes to administer in the geriatric setting.


BACKGROUND: To validate and extend the findings of a raised cut score of O'Bryant and colleagues (O'Bryant SE, Humphreys JD, Smith GE, et al. Detecting dementia with the mini-mental state examination in highly educated individuals. Arch Neurol. 2008;65(7):963-967.) for the Mini-Mental State Examination in detecting cognitive dysfunction in a bilingual sample of highly educated ethnically diverse individuals. METHODS: Archival data were reviewed from participants enrolled in the National Alzheimer's Coordinating Center minimum data set. Data on 7,093 individuals with 16 or more years of education were analyzed, including 2,337 cases with probable and possible Alzheimer's disease, 1,418 mild cognitive impairment patients, and 3,096 nondemented controls. Ethnic composition was characterized as follows: 6,296 Caucasians, 581 African Americans, 4 American Indians or Alaska natives, 2 native Hawaiians or Pacific Islanders, 149 Asians, 43 "Other," and 18 of unknown origin. RESULTS: Diagnostic accuracy estimates (sensitivity, specificity, and likelihood ratio) of Mini-Mental State Examination cut scores in detecting probable and possible Alzheimer's disease were examined. A standard Mini-Mental State Examination cut score of 24 (≤23) yielded a sensitivity of 0.58 and a specificity of 0.98 in detecting probable and possible Alzheimer's disease across ethnicities. A cut score of 27 (≤26) resulted in an improved balance of sensitivity and specificity (0.79 and 0.90, respectively). In the cognitively impaired group (mild cognitive impairment and probable and possible Alzheimer's disease), the standard cut score yielded a sensitivity of 0.38 and a specificity of 1.00 while raising the cut score to 27 resulted in an improved balance of 0.59 and 0.96 of sensitivity and specificity, respectively. CONCLUSIONS: These findings cross-validate our previous work and extend them to an ethnically diverse cohort. A higher cut score is needed to maximize diagnostic accuracy of the Mini-Mental State Examination in individuals with college degrees.
Next Month’s Issue:

Independence and Dependence in Dementia
and Community Resources

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