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Predicting functional performance by patients with Alzheimer's disease using the Problems in Everyday Living (PEDL) Test: A preliminary study

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Abstract

Findings from a recent population-based survey indicate that about 33% of patients with dementia reside alone. Because many of these patients may not have a caregiver who visits them regularly, the need for a neuropsychological (NP) test to predict patients' functional competence to live alone safely is evident. In this study, we compared the accuracy of predicting Instrumental and Basic Activities (IADLs and ADLs) of 22 patients with Alzheimer's disease using several standard NP tests and the newly developed Problems in Everyday Living (PEDL) test. Performance of IADLs and ADLs as rated by caregivers was significantly correlated with performance on the PEDL, the Mini-Mental State Exam (MMSE), and with the Shipley Institute of Living Test of Verbal Abstraction (SILS-A), but not with vocabulary or naming. The PEDL was the best predictor of IADL scores ($r = 0.71$), compared to the MMSE ($r = 0.52$) and the SILS-A ($r = 0.57$), while the MMSE was the best predictor of ADL performance ($r = 0.69$), compared to the PEDL ($r = 0.58$) and the SILS-A ($r = 0.50$). (*JINS*, 2002, *8*, 48–57.)

Keywords: ADL, Dementia, Problem solving

INTRODUCTION

Alzheimer's disease (AD) is the most common cause of dementia in the elderly. It affects at least 4,000,000 people in the United States with an annual cost of more than $100 billion (Ernst & Hay, 1997). Because caring for patients in nursing homes costs at lease twice as much as caring for them at home, on purely economic grounds there is a strong incentive to keep patients at home for as long as possible, provided that their well being and safety are not jeopardized.

To aid in judging patients' needs for assistance in tasks essential for daily living, clinicians have utilized two rather different approaches. One strategy focuses on a detailed assessment of the patient's performance of a particular task such as preparing food or drink (Baum & Edwards, 1993; Rusted et al., 1997), getting dressed (Feyereisen et al., 1999), or managing financial affairs (Marson et al., 2000). Typically, the information collected in these studies is sufficiently detailed to analyze errors that are impairing function and to guide efforts at rehabilitation (Schwartz et al., 1999).

Conducting a brief survey of patients' capacities to perform a variety of essential tasks is a second approach to assessment. To accomplish this goal, clinicians often utilize questionnaires completed by caregivers who rate patients' abilities to perform instrumental and basic activities of daily living (IADLs and ADLs). Several instruments to measure these capacities have been developed and validated (e.g., Galasko et al., 1997; Lawton & Brody, 1969). IADLs include tasks like managing money that decline early in the course of AD. Basic ADLs include self-care behaviors like dressing that generally remain intact until the patients' dementias are moderate to severe (Galasko et al., 1997).

Although caregiver ratings of functional performance are potentially subject to various biases that could be overcome by direct observation of patients performing ADLs in their own homes, the cost of the latter approach, given the need for multiple observations on different occasions to ensure reliability, precludes its general use. In the absence of a practical alternative, proxy ratings, usually by caregivers

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who reside with or close by the patient, have become the standard measures of dementia patients' abilities to perform IADLs and ADLs.

When the person making the ratings has frequent contact with the patient and has adequate support from family and friends, the resultant ratings are probably adequately valid for judging patients' competence to reside outside a nursing home. However, there are two relatively common situations in which the proxy ratings of patients' functional competencies might be of questionable validity. First is the situation in which several family members have dramatically different views of the patient's cognitive and functional capacities, leaving the clinician to guess which opinion is most nearly correct. The prevalence of this situation is not known. The second situation occurs when the patient resides alone and is infrequently seen by the next of kin or other caregiver who is available to the clinician. A recent population-based survey in Canada (Ebly et al., 1999) reported that more than 31% of patients with a diagnosis of dementia lived alone. Of these, 47% were judged to have moderate to severe impairments in performing basic ADLs or were totally dependent. Assuming that these Canadian data can be generalized to the United States, then between 1.0 to 1.25 million patients with AD are living alone. Further, as many as 50% may lack the functional skills to live by themselves competently.

The foregoing analysis suggests that for about 33% of patients with AD, there may be no family member or other caregiver who can provide valid and up-to-date information about the patients' abilities to perform activities essential to permit them to live independently. If clinicians are to manage the care of their dementia patients in such a way that they can live in the community with reasonable safety and well being for as long as possible, then an instrument that can accurately predict functional capabilities (especially performance of IADLs) is needed. Such an instrument would have value for planning patient care, even if the patients resided with a caregiver.

Most previous studies that have addressed this problem have determined the ability of standard mental status exams such as the Mini-Mental State Exam (MMSE; Folstein et al., 1975) or the Dementia Rating Scale (DRS; Mattis, 1988) to predict performance of IADLs. These studies (Ford et al., 1996; Galasko et al., 1991; Teri et al., 1989; Vitaliano et al., 1984) have revealed correlations ranging from .34 to .65 between performance on mental status exams or their component scales and caregiver ratings of performance of IADLs. These correlations tend to be fairly high when patient scores on the mental status exam vary from the mildly to the severely impaired range. When samples are restricted to include only patients who are mildly to moderately demented, correlations of mental status scores and caregiver ratings of IADL performance remain statistically significant, but are usually lower in magnitude. Thus, mental status tests are only an imperfect predictor of the functional status of patients with AD.

Recent studies of the natural history of AD indicate that the diagnosis of dementia is usually preceded by a period of cognitive impairment lasting several years. The cognitive impairment includes anterograde learning and memory (Jacobs et al., 1995; Masur et al., 1994; Petersen et al., 1999; Small et al., 1997) and may involve verbal reasoning as measured by the WAIS Similarities test (Elias et al., 2000; Jacobs et al., 1995). Other cognitive functions do not forecast which elderly individuals will develop AD reliably. Tests of anterograde memory (and to a lesser extent verbal reasoning) are not, however, especially useful for staging dementia severity (e.g., Murphy et al., 1999; Welsh et al., 1992), mainly because of floor effects. For staging dementia severity and predicting cognitive decline, tests of language and semantic (knowledge) memory may be preferred (e.g., Chan et al., 1995; Jacobs et al., 1994; Mortimer et al., 1992).

Analysis of the demands for successful performance of the tasks that comprise the most widely used test of competence to perform IADLs (Lawton et al., 1982) suggests that they place a heavy premium on the ability to recall overlearned information and apply this information to solution of the current problem. The role of anterograde memory seems limited to ensuring that the required action is executed at the appropriate time (i.e., prospective memory for tasks such as taking medications on schedule). Based on this analysis we reasoned that measures of semantic memory and problem-solving might be related to performance of IADLs by patients with AD.

To test these hypotheses, we administered the MMSE, a measure of overall cognitive status, two tests of semantic memory (vocabulary and naming) and two measures of abstraction/problem-solving. One measure, the Shipley Institute of Living Abstraction Scale (Zachary, 1996) is a verbal seriation test. The other task, the Problems in Everyday Living Test (PEDL; Beatty et al., 1998) measures solution of practical problems that occur in everyday life. Caregivers who resided with the patients provided ratings of IADLs and ADLs.

METHODS

Research Participants

Patients in the AD group ($N = 15$ males, 7 females) were recruited from the Center for Alzheimer's and Neurodegenerative Diseases of the Veterans Affairs Medical Center in Oklahoma City and from area adult daycare centers. Normal controls ($N = 7$ males, 11 females) were recruited from the groups of patient caregivers and from the community by placing posters in senior citizen centers and hospitals. With the exception of 1 male patient who was African American, all of the participants were white.

Potential participants were excluded if they had a history of (1) serious psychiatric illness (i.e., bipolar disorder, schizophrenia, major depression antedating the onset of AD); (2) drug or alcohol abuse; (3) traumatic brain injury with loss of consciousness greater than 1 hr; (4) any disease affecting the CNS (e.g., Parkinson's disease, multiple sclerosis) ex-

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cept AD for the patients; or (5) major medical disease (e.g., recent or complicated heart attack, untreated or untreatable hypertension, thyroid disease or diabetes).

Patients underwent extensive medical and neurological workups to rule out other possible causes for their dementias, met criteria for probable AD (McKhann et al., 1984), and scored below 4 on the Hachinski Ischemia Scale (Hachinski et al., 1975). All participants had adequate corrected vision and hearing to complete the tests and all resided in the community. Participants or their next of kin provided written informed consent after a thorough explanation of the procedures which were approved by the local Institutional Review Board.

Procedure

In a battery that required about 1 hr to administer, all participants received the MMSE (Folstein et al., 1975), the Consortium to Establish a Registry for Alzheimer's Disease (CERAD) version of the Boston Naming Test (BNT; Morris et al., 1989), the Shipley Institute of Living Vocabulary and Abstraction Scales (SILS-V and SILS-A; Zachary, 1986) and the Problems in Everyday Living test (PEDL; Beatty et al., 1998). The SILS-V is a 40-item multiple choice test on which the participant selects the one word from among four alternatives that most closely matches the target word in meaning. The SILS-A is a 20-item verbal seriation test of abstract reasoning. Sample items are shown in the Appendix.

The PEDL is a 14-item test of practical problem solving. Three items were chosen from the WAIS-R Comprehension test (Wechsler, 1981); an additional 11 items of similar form were original. The WAIS-R items were "What would you do if you found a sealed letter in the street with a new stamp?" "What should you do if you see fire and smoke at the movies?" and "How would you find your way out of the forest if you were lost in the daytime?" Examples of the original items are "What would you do if you discover that your freezer, which is full of food, is not working and it's Friday evening?" and "You notice your dog is limping. What do you do?" Responses were recorded verbatim and scored on a 3-point scale (0–2), identical to the system used to score the WAIS–R Comprehension items. In a previous study (Beatty et al., 1998), interrater reliability was .944; hence only a single rater scored the present data. The complete PEDL including the scoring key is included in the appendix.

To minimize distractibility, items for the SILS-V, SILS-A, and PEDL were printed in 16-point type on cards. On the PEDL, the first verbal solution produced by the participant was scored. One patient attempted to make a joke on one item. In that case, the examiner smiled and said "What would you really do?" The next verbal response was scored.

For each patient, a caregiver who had daily contact with the patient completed questionnaires concerning the patient's functional abilities. The IADL scale consisted of nine items (using the telephone, getting to places outside of walking distance, shopping for groceries, preparing meals, doing housework, doing handyman work, doing laundry, taking medicines properly, managing money). The ADL scale consisted of six items related to self-care (bathing, dressing, toileting, transfer, continence, feeding). The items for both scales were extracted from the Philadelphia Geriatric Center Multi-level Assessment Instrument (Lawton et al., 1982). All items were scored on a 3-point scale (1–3); a score of 3 indicated ability to perform the task independently, a score of 2 indicated ability to perform the task with some help, and a score of 1 indicated an inability to perform the task, even with assistance.

Control participants self-reported their own ability to perform IADLs. Self-report was necessary because nine of the 18 control participants lived alone; for these individuals caregiver ratings were not available. We elected to use self-reports rather than dropping control participants without caregivers, because Long et al. (1998) reported high caregiver-elder response agreement (range: 72–94%) for the items from the IADL in a study of 340 frail elderly and their caregivers.

RESULTS

Table 1 summarizes the results of the between groups comparisons. There were no significant differences between the

Table 1. Demographic and neuropsychological test scores

	AD patients			Controls		
Variable	*M*	*SD*	Range	*M*	*SD*	Range
Age (years)	78.6	5.5	68–88	74.0	10.6	51–95
Education (years)	12.4	4.4	6–20	14.0	3.2	8–18
MMSE* (0–30)	18.2	4.6	9–28	29.2	0.9	28–30
SILS-V* (0–40)	23.8	6.6	11–34	35.2	3.3	26–39
SILS-A* (0–20)	4.4	4.4	0–16	13.4	3.1	7–19
CERAD-BNT* (0–15)	11.5	2.2	8–14	14.8	0.4	14–15
PEDL* (0–28)	18.1	4.3	7–26	24.9	1.8	21–27
IADL* (9–27)	16.4	5.3	9–27	26.5	1.0	25–27
ADL* (6–18)	15.7	2.5	10–18	–	–	–

*Possible range of scores.

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Table 2. Pearson and (Spearman) correlations between neuropsychological and functional measures for patients

Measure	IADL		ADL	
MMSE	.516*	(.495*)	.690***	(.684***)
CERAD-BNT	.202	(.166)	.373	(.247)
SILS-V	−.115	(−.207)	.143	(.050)
SILS-A	.572**	(.477*)	.501*	(.563**)
PEDL	.711***	(.694***)	.580**	(.573**)

*$p < .05$, **$p < .01$, ***$p < .001$.

AD and control groups for age or education and in the proportion of men and women. There were also no significant gender or Gender × Group effects on any neuropsychological (NP) variable so the data for males and females were combined. As expected, the patients and controls differed significantly on all of the NP tests and on the IADL scores [Fs(1,38) > 38.7, ps < .001].

Table 2 reports zero-order correlations between performance by patients on each of the NP tests and the caregiver ratings on the IADL and ADL scales. Significant correlations were observed for the MMSE, the SILS-A, and the PEDL for both measures of function, but performance on vocabulary and naming was not significantly associated with either of the functional measures. Comparable results were observed with both Pearson and Spearman correlations.

The relationships between NP performance and IADL ratings are also illustrated in Figure 1. As seen in the upper panel of Figure 1, the best fitting linear regression equation of IADL ratings with scores on the PEDL accounted for 50.3% of the variance in IADL scores; comparable calculations for MMSE (lower panel of Figure 1) and SILS-A indicated that, taken alone, these variables accounted for 28.9% and 32.5% of the variance in IADL ratings. Scores for control participants are shown on the figures for comparison. Control scores were not used in calculating the regression equations. Note that for the PEDL and the MMSE, control scores lie only slightly above the regression line for patients, raising the possibility that similar processes underlie the loss of functional and cognitive skills. This was not true for the SILS-A. On this measure, many control participants remained competent at performing IADLs but did poorly on verbal abstraction.

To determine which variables best predicted IADL performance, we first performed stepwise multiple regression analyses. Only the PEDL was a significant predictor; neither MMSE nor SILS-A increased the accuracy of prediction. Next we addressed the following practical question: Assuming that one has a MMSE score for a patient, does acquiring a PEDL score on the same patient increase the accuracy of prediction? To address this issue we utilized hierarchical multiple regression, forcing MMSE to enter the equation first. This analysis indicated that MMSE predicted 29% of the variance in IADL scores and PEDL accounted for an additional 22%. A similar hierarchical analysis showed that SILS-A predicted 33% of the variance and PEDL added an additional 26%. These analyses are summarized in Table 3.

Similar analyses were performed to determine the relationships between ADL ratings and performance on the PEDL, MMSE, and SILS-A. Stepwise multiple regression indicated that MMSE was the best predictor of caregiver ratings of basic ADL performance, accounting for 48% of the variance. Neither PEDL nor SILS-A scores significantly increased the accuracy of prediction, although both measures were significant predictors of ADL scores if taken alone. The PEDL accounted for 34% of the variance and SILS-A accounted for 25% of the variance in ADL scores.

Correlational analyses are significantly influenced by the range of scores on both variables. It might be argued that including patients with severe dementia (i.e., very low MMSE scores) artificially inflated the relationships described above, because no responsible clinician would assume that such a patient might be capable of performing the IADLs necessary for competent independent living. To address this issue we excluded the 4 patients with MMSE scores below 15 and repeated the analyses for the IADL ratings. With the range of MMSE scores restricted to 15 to 28, the proportion of variance in IADL scores accounted for by the PEDL, MMSE and SILS-A was respectively 39%, 9%, and 28%. Pearson correlations were .63, .29, and .53 respectively. The relationship between IADL and PEDL and IADL and SILS-A remained significant (ps < .001 and .01, respectively), but the relationship between IADL and MMSE was no longer significant. Again, stepwise regression showed that the PEDL score was the only significant predictor of IADL ratings (see Table 3). Dropping the 4 patients with the lowest PEDL scores produced identical results, because these patients also had the lowest MMSE scores.

Excluding the 4 patients with MMSE scores less than 15 reduced the variance accounted for by the MMSE for the basic ADL ratings to 19%, a relationship that was still statistically significant ($p < .05$).

If only patients with mild dementia (i.e., MMSE > 20) were retained, the Pearson correlations between IADL rat-

Table 3. Summary of hierarchical regression analyses to predict IADL, MMSE forced to enter first

Group/variables/step	r^2_{adj}	β	t	p
All patients				
1. MMSE	.276	.557	3.00	.01
2. MMSE + PEDL		.167	0.82	.43
	.479	.608	2.97	.01
Patients with MMSE ≥15				
1. MMSE	.046	.320	1.35	.26
2. MMSE + PEDL		.218	1.11	.29
	.358	.584	2.96	.01
All patients: SILS-A forced to enter first				
1. SILS-A	.294	.572	3.12	.01
2. SILS-A + PEDL		.294	1.73	.10
	.534	.573	3.36	.01

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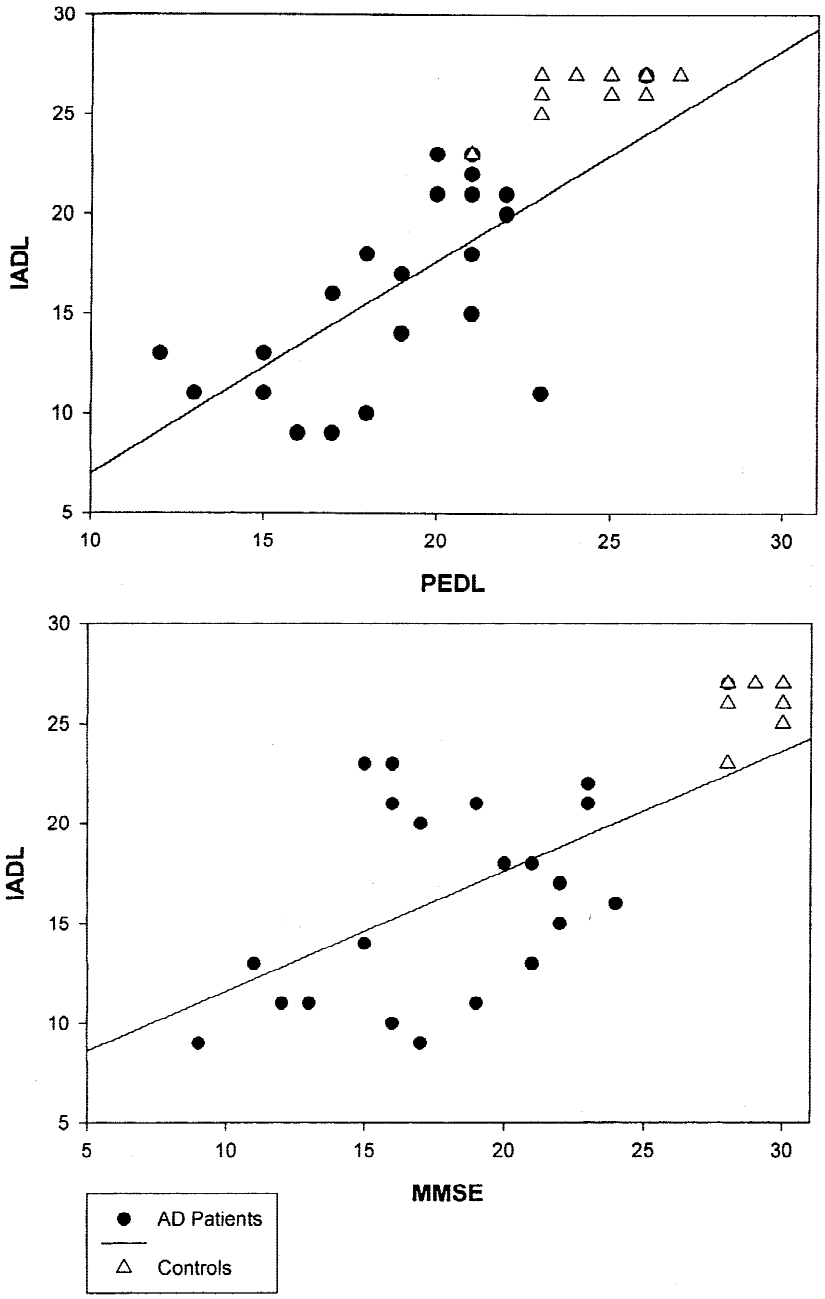

Fig. 1. Scatterplots depicting the relationship between caregiver ratings of IADL performance and scores on the PEDL for patients (upper panel) and between IADL ratings and MMSE scores for patients (lower panel). The best fitting linear regressions were IADL = 0.8828 (PEDL) + 0.1678 and IADL = 0.6016 (MMSE) + 5.5891. Scores for control participants (open triangles) are shown for comparison and were not used in calculating the regression. Several control participants had identical IADL and PEDL scores or identical IADL and MMSE scores.

ings and PEDL, MMSE, and SILS-A were .78, .71 and .84 respectively. Because there were only 9 patients in this subsample the results should be interpreted cautiously.

DISCUSSION

The present findings demonstrate that the PEDL predicts IADL performance of patients with AD more accurately than the MMSE. The brevity of its administration should make the PEDL an attractive choice for use in dementia treatment centers or general geriatric medicine clinics that have limited time and other resources for NP testing. The best use of the PEDL would be as a screening examination. Suspiciously low scores on the PEDL should prompt additional examination of particular skills, either by specialized testing or visits by clinic personnel to the patient's home.

When the entire patient sample was included, the MMSE was a reasonably accurate predictor of IADL ratings; the

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correlation between MMSE and IADL scores ($r = 0.52$) is comparable to published results concerning prediction of the functional capabilities of patients with AD using standard mental status exams (Ford et al., 1996; Galasko et al., 1991; Teri et al., 1989; Vitaliano et al., 1984). However, when the patient sample was restricted to individuals with mild or moderate dementia the predictive power of the MMSE declined dramatically (r dropped from .52 to .29), while the predictive power of the PEDL was only modestly reduced (r dropped from .71 to .62). We believe that the ability to predict IADLs for mildly and moderately demented patients is the most important property of a test because such patients are most likely to be living alone with only infrequent contact with caregivers. By this criterion, the PEDL is clearly superior to the MMSE. Of course, the two tests can easily be used in combination, yielding a slight but statistically insignificant increase in the accuracy of prediction obtained from the PEDL alone.

In our earlier study of coping styles in multiple sclerosis (Beatty et al., 1998), the PEDL was a moderately accurate predictor of problem-focused coping while the SILS-A was unrelated to any coping pattern. In the present study, the SILS-A was about as good a predictor of IADLs as the MMSE, which may only reflect the fact that the two measures were positively correlated ($r = .54$). Despite its brevity and moderate ability to predict IADLs, we cannot recommend the SILS-A for this purpose because most patients with AD will attain scores that are near zero. An additional problem is the variable performance by control participants, which would make establishing useful cut-off scores difficult. Even our limited data make it clear that fairly poor performance on the SILS-A is not incompatible with competence to perform IADLs.

Contrary to expectation, the tests of semantic knowledge (vocabulary and naming) were not related to functional performance by the patients. This suggests that merely possessing and retrieving established knowledge is not sufficient to performing IADLs and ADLs competently. The superiority of the PEDL to the other tasks for predicting IADL performance probably arises because performing well on the PEDL and on IADLs requires the application of well established knowledge to a specific circumstance. It should be noted, however, that the PEDL problems are not the same as the IADL skills. Hence, the correlations are not spurious or troubled by criterion contamination.

In the present study, the MMSE proved to be the best predictor of performance of basic ADLs, although the PEDL and SILS-A were also significantly correlated with performance of these self-care activities. Although inability to perform ADLs competently is an important determinant of nursing home placement (e.g., Galasko et al., 1991), these activities are performed daily and are much more easily observed directly than many of the IADLs (e.g., shopping, doing laundry, managing money). Competent performance of both IADLs and ADLs is essential if patients are to live alone safely, but predicting performance of IADLs is a far more important task for NP tests.

While the present study was in progress two reports appeared describing neuropsychological batteries that were highly correlated with performance of ADLs. Perry and Hodges (2000) used a battery that included tests of episodic memory, attention/executive function, semantic memory, visuospatial function, and auditory working memory. Caregiver ratings of patients' abilities to perform ADLs served as the dependent variable. Of the 25 tasks on their ADL battery, 22 appear to be IADLs. Statistically significant ($p < .01$) correlations between overall ADL and NP performance were observed for visuospatial function ($r = .74$), MMSE ($r = .73$) and semantic memory ($r = .58$), but not for measures of anterograde episodic memory or attention.

Gute et al. (2000) used a battery that contained tests of executive, visuospatial and memory functions to predict caregiver ratings on the Blessed Dementia Scale for ADLs. This scale contains ratings for 3 basic ADLs and seven IADLs, but scores for the ADLs are weighted 3 times as heavily as scores on the IADLs. Gute et al. (2000) reported that the correlation between performance on the executive domain and the CERAD ADL scale was .69; the correlation of ADLs with visuospatial function was "modest" and with memory "minimal." No correlation of ADLs with a measure of global cognitive function was reported.

Like the present study, the investigations of Perry and Hodges (2000) and Gute et al. (2000) included 25 or fewer patients and used different batteries of predictors and assessments of functional performance. Presumably the discrepancies in conclusions about which variables best predict IADLs and ADLs relate to one or more of these factors. Two conclusions can be drawn, however. First, as noted in the Introduction, measures of anterograde memory are generally not good predictors of functional capability in patients with AD. Second, the PEDL, alone or in combination with the MMSE, is at least as good a predictor of functional capability as longer batteries that have been used.

The present study suffers from two important limitations. The sample size was small and the sample contained only one member of a minority group, an African American male. Differences in performance by Whites and African Americans on NP tests including the MMSE have often been reported (e.g., Fillenbaum et al., 1998; Murden et al., 1991; Welsh et al., 1995), but despite overall group differences, Ford et al. (1996) found that the MMSE predicted the performance of IADLs and ADLs by White and African American patients with AD with equivalent accuracy. The single African American patient in the present study scored 23 on the MMSE, 12 on the SILS-A, 21 on the PEDL, 22 on the IADL, and 18 on the ADL. Thus, his scores fell very close to the regression lines relating performance of IADLs and ADLs to performance on the NP tests. With respect to the application of the PEDL to prediction of IADLs by members of minority groups, this single case is encouraging. However, because the "correct" solutions to the real-world problems presented on the PEDL may differ from one culture to another, a larger study with adequate representation both male and female patients from minority groups

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is clearly needed. Ideally, a longitudinal study comparing the PEDL, the MMSE as well as measures of executive and visuospatial function could be performed.

Assume that the larger study was successful in replicating and extending the present findings. Then it might be possible to establish cut-off scores identifying individual patients in need of additional supervision and assistance in managing their daily affairs. Patients so identified might receive more detailed evaluations of particular skills like preparing food or dressing (e.g., Baum & Edwards, 1993; Feyereisen et al., 1999) to determine whether they could continue to live at home with additional assistance and rehabilitation (Schwartz et al., 1999) or would be better off transferring to a nursing home.

All of the patients in the present study had adequate vision and hearing and were in good general health. Hence, their functional capabilities were mainly limited by their cognitive status. Performance of IADLs and ADLs is limited by a number of noncognitive factors such as poor vision or hearing, limited strength and range of motion, and overall frailty. Clearly these factors must also be considered in deciding whether elders can safely reside alone.

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APPENDIX

PREDICTORS OF FUNCTIONAL CAPACITY

A. Examples from the Shipley Abstraction Test (SILS-A). Items 1 and 4 are relatively easy. Item 14 is more difficult.

Instructions: Complete the following by filling in either a number or a letter for each dash (__). Do the items in order, but do not spend too much time on any one item.

EXAMPLE: A B C D E

1. 1 2 3 4 5 _
4. Z Y X W V U _
14. Scotland landscape scapegoat _ _ _ _ ee

B. Problems in Everyday Living Test (PEDL). Questions are read to the participant and they are printed on a card in view of the participant. Only the problem is printed on the participant's card, but in the list below possible answers and their scoring values are reported. Items 11–13 are taken verbatim from the WAIS–R (Wechsler, 1981).

1. You notice your dog is limping. What do you do?
   (2) Get an idea of what could be done before starting further actions
   – Check the dog's paw
   – Observe the dog
   (1) Do something which leads to a solution without checking alternatives first.
   – Call the veterinarian
   – Rush the dog to the veterinarian
   (0) Start actions, which do not refer to the problem, or even doing nothing.
   – Feed him
   – Ignore it

2. Last month, you purchased a new coffee maker. It worked well for about three weeks, but now the burner does not heat up. What do you do?
   (2) Recognize the responsibility of the seller or producer
   – Return it to the place where it was purchased
   – Try to find the warranty card and follow instructions for sending it off for repair
   – Take apart and fix, with knowledge of electronics
   (1) Any actions which lead to a solution of the problem neglecting the producer's responsibility
   – Take it apart and see if you can fix it, without knowledge of electronics
   – Throw it out and buy a new one
   (0) Avoid a solution of the problem by adapting to the situation
   – Adapt yourself to a burned-out burner

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3. You look at the calendar and realize a good friend's birthday was last week. You forgot to send her a card. What do you do?
   (2) Admit that you forgot and contact the friend
   – Call and apologize
   – Send a belated card
   (1) Contact the friend, but do not admit that you forgot
   – Pretend you sent one
   (0) Avoid any contact with the problem
   – Ignore it and hope she does not notice or will not care

4. Your usual breakfast consists of: a bowl of cereal with milk, a glass of orange juice and a cup of coffee. One morning you go to make your breakfast and find out you don't have any milk. What do you do?
   (2) Try alternatives
   – Have something else for breakfast
   (1) Get a solution without changing your habits
   – Borrow a cup of milk from the neighbor
   – Go out and buy milk
   (0) Have your usual breakfast without solution of the problem
   – Eat your cereal dry

5. You are taking a college class for credit. After three weeks, you have to miss a class session because of illness, but you are able to return after missing that one class. What do you do?
   (2) Recognize the need to get information about the missed class
   – Ask the instructor
   – Ask a classmate
   (1) Try to prepare on your own
   – Make sure you have read the text
   (0) Omit any effort to make up for the next lesson
   – Drop the course
   – Hope the information you missed will not be asked on the next test

6. You find a letter in your mailbox that has been mis-delivered. It should have been placed in your next-door neighbor's mailbox. What do you do?
   (2) Realize that it needs to be taken to your neighbor
   – Call them and let them know you have their mail
   – Go to neighbor's house and give them the mail
   – Write "Delivered to wrong address" on the envelope
   (1) Recognize that it is another person's property
   – Call the neighbor to have them come get the letter
   (0) Actions that don't lead to an immediate solution
   – Open the letter
   – Throw it out

7. You receive your monthly bank statement on your checking account. When you try to reconcile your checkbook with the bank statement, you find that the bank says you have $100 more than your checkbook balance shows. What do you do?
   (2) Recognize that it is possibly not your money and try to solve it immediately
   – Double check your math
   – Call the bank
   (1) Recognize that it is possibly not your money and that you are not allowed to spend it.
   – Set it aside, don't spend it
   (0) No recognition of the problem and further consequences
   – Spend it

8. a. It is Friday evening. You discover that your oven is not working. What do you do?
   b. It is Friday evening. You discover that your freezer has stopped working sometime within the past day or two. The freezer is full, and you have several hundred dollars worth of meat and other expensive items. What do you do?
   (2) Get a solution with a minimum amount of costs which could imply personal contact
   a – Wait until Monday; use the microwave
   a – Ask your neighbors if you can use their oven
   b – Try to move all the food and wait until Monday
   a or b – Fix them, with knowledge of appliance repair
   (1) Solution with no respect to the costs
   – Call an appliance repair service
   – Buy a new one
   (0) Adapt yourself to the situation without solving the problem
   – Live without it indefinitely

9. You have a friend you speak to only every two months or so. One day you call her, and a machine answers. A recorded voice you do not recognize asks you to lease a message. What do you do?
   (2) Make an effort to confirm the number
   – Double check the number
   – Leave a qualified message
   (1) Realize that you might have the wrong number
   – Call a mutual friend
   – Write a letter to a friend
   (0) Do not recognize the possibility of a failure or give it up
   – Hang up and do not try again

10. You are leaving the house with just enough time to arrive at an appointment on time. You glance down. Peeking from your pants are your socks – one is blue and the other is black. What do you do?
   (2) Solve the problem immediately
   – Go back home and change your socks and call to inform people of potential tardiness
   (1) Try to manage the situation without solving the actual problem
   – Go to your appointment. Explain it.
   (0) Ignore the problem
   – Go to your appointment and hope nobody notices

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– Take them off (this alternative could be worth 2 points if the participant clearly indicates that the appointment is in a setting where casual dress is appropriate)

11. What is the thing to do if you find an envelope in the street that is sealed, addressed, and has a new stamp?
    (2) Recognition that the letter should be put into the mail immediately
        – Return it to the post office . . . Mail it . . . Drop it in the nearest box . . . Give it to the postman
    (1) Recognition that the letter is the property of someone else, but a poor idea as to the disposition of it
        – Give it to a policeman . . . Take it to the dead letter office . . . Try to find the owner
    (0) No idea of what to do with the letter or that the letter is the property of someone else
        – Leave it alone . . . Open it

12. What should you do if while in the movies you are the first person to see smoke and fire?
    (2) Recognition that a person in authority on the scene, such as a manager or usher, should be notified
        – Report it to an usher . . . Report it to the manager . . . Tell the ticket taker
    (1) Recognition that action, though not so immediately effective, should be taken
        – Ring the fire alarm . . . Try to put the fire out or call the fire department
    (0) Description of actions which would create a panic or would not avert disaster
        – Shout, "Fire!" . . . I'd try my best to get out . . . Stay calm (Q) . . . Warn the other people (Q) . . . Run out . . . Walk to the nearest exit . . . Go for water

13. If you were lost in the forest in the daytime, how would you go about finding your way out?
    (2) Any explained use of natural phenomena in order to find a way out, or a systematic approach to the problem
        – Try to go in one direction by using the sun (stream, moss) . . . Get your direction from the sun . . . Use of a watch as a compass (explained fully) . . . Look for a stream or path and follow it to avoid circles
    (1) Mention of a haphazard means of getting out, or a partial 2-point response unexplained
        – By the sun (Q) . . . Moss (Q) . . . Follow a stream (Q) . . . Follow a path (Q) . . . Walk in the direction of the sun (Q) . . . Climb to the top of the tallest tree and try to locate a landmark . . . Look for landmarks for bearings (Q)
    (0) Use of unreliable or senseless phenomena, or reliance on people
        – Try to find a policeman to help you find your way out . . . Keep on walking . . . Try to find the way you got in . . . Wait for a forest ranger . . . I usually watch the way I go in and follow the moon . . . I would shout

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