Supplementary Methods and Materials

Actuarial Grouping Method

256 participants completed assessments for the THINK PHRESH study. Eight participants were excluded from the analyses due to all outcome data missing (n=2), all neuropsychological data missing (n=1), data validity being deemed invalid due to low effort at the time of testing as determined by research staff (n=3), environmental interference during testing (n=1), or developmental disability that impacted ability to obtain accurate cognitive assessment (n=1). Data from the remaining participants were examined for individual missing scores prior to running analyses. This resulted in a final 248 participants included in these supplementary analyses. Multiple imputation using the MICE [27] and Random Forest [28] packages in R were used to impute missing WRAT-3 (n=14), Ecog-12 (n=2), PASS shopping (n=19), PASS medication (n=8), and PASS critical information retrieval (n=7) scores. Following imputation, all data was examined for normality and outliers. No data transformation was required.

Participant groups were defined using a modified version of the conservative Jak/Bondi actuarial diagnostic approach (Jak et al., 2009). Given the relatively low literacy and formal education levels in this cohort, the conservative approach was selected to avoid potentially over pathologizing low scores. In the conservative actuarial method outline by Jak and colleagues, a diagnosis of MCI was conferred when participants had either 1) an impaired score of >1.5 standard deviations below the mean on both measures within a single cognitive domain, 2) one impaired score in each of the three cognitive domains measured (memory, language, and speed/executive function), or 3) a score on the Functional Activities Questionnaire (FAQ) ≥9, which indicates dependence on three or more activities of daily living.

Criteria 1) and 2) above were adopted for the current study. Criteria 3) was unable to be applied as there was not a measure equivalent to the FAQ available. Cognitive domains measured in the current study included attention, executive functioning, language, and delayed memory. There was variability in the number of tests/scores making up each domain, with the attention domain consisting of two tests/scores (WMS-III Digit Span Total Score, WAIS-R Digit Symbol Substitution Test), the executive functioning domain consisting of six tests/scores (Trail Making Test A & B, Golden Stroop word, color X, and color-word scores, and the Digit Ordering Test), and the language (Boston Naming Test, FAS total score, and Animal Naming total score) and delayed memory domains (WMS-III Logical Memory II, WMS-III Visual Reproduction II, and CERAD Long Delay Recall) consisting of three tests/scores. Participants in the current study were considered to have possible cognitive impairment if they had 1) two or more scores below 1.5 SD in one domain or 2) one score below 1.5 SD across at least three domains. All remaining analyses were run using the same methods as those outlined in the main manuscript.

Results can be found below in Tables S1, S2, and Figure S1 and are similar to those found in the main manuscript results. Compared to the UCI group, the PCI group was on average older, had less formal education, and had lower WRAT3-Reading Z-scores (Table S1). There were no differences in self-reported race or gender or neighborhood of residence. On average, both the PCI and UCI groups reported elevated levels of subjective cognitive complaints on the ECog-12 and were not statistically different from each other. Participants from both the UCI and PCI groups required relatively few cues to complete the PASS critical information retrieval subtask and did not differ significantly from each other. Compared to the UCI group, the PCI group required significantly more assistance on PASS shopping and medication management. The high NPV at the optimal cutoff (84-89% of people classified as UCI are UCI) and low PPV (only 42-

48% of people classified as PCI are PCI) indicate that the PASS shopping and medication management subtasks and the combined 2-C-IADL model are most effective at ruling-out cognitive impairment, rather than ruling in cognitive impairment for participants with borderline scores.

Table S1 – Participant Demographics and Functional Outcome Performance; Actuarial Diagnosis Method

	Total Sample	Unlikely Cognitive Impairment	Possible Cognitive Impairment			
	N = 247	N = 182	N = 65			
Demographics	(M ± SD)	(M ± SD)	(M ± SD)	P-value	T	d
Age (range 51-90)	66.52 ± 9.33	65.86 ± 9.08	68.06 ± 9.60	0.11	-1.61	-0.24
Education in years (range 5-20)	12.59 ± 2.23	12.81 ± 2.23	11.95 ± 2.12	0.01	2.76	0.39
WRAT3-Reading Z-Score (range -2.79-2.62)	-0.01 ± 0.96	0.15 ± 0.89	-0.48 ± 1.01	> 0.01	4.46	0.68
Modified Mini Mental Status Exam (3MS) Score Range (54-100)	86.99 ± 8.70	89.34 ± 6.57	80.38 ± 10.50	> 0.01	6.41	1.15
						ω
Race, % Black, n (%)	234 (94.7%)	173 (95.0%)	61 (93.8%)	0.95	-	0.05
Gender, % Female, n (%)	204 (82.5%)	151 (82.9%)	53 (81.5%)	0.87	-	0.03
Neighborhood, % Hill District, n (%)	167 (67.6%)	121 (66.4%)	46 (70.7%)	0.64	-	0.06
Functional Outcome Measures						
					Z	d
ECog, averaged score	1.49 ± 0.42	1.49 ± 0.42	1.50 ± 0.45	0.95	0.06	> 0.01
Shopping, # cues	5.59 ± 5.41	4.47 ± 3.98	8.57 ± 7.38	> 0.01	2.69	0.56
Medication Management, # cues	3.71 ± 3.93	2.88 ± 3.00	5.88 ± 5.05	> 0.01	2.88	0.53
Critical Information Retrieval, # cues	0.37 ± 1.07	0.26 ± 0.83	0.68 ± 1.52	0.09	1.70	0.29
2 C-IADL, # cues	9.30 ± 8.47	7.36 ± 6.11	14.45 ± 11.3	> 0.01	3.15	0.69

Abbreviations: WRAT3-Reading, Wide Range Achievement Test 3-Reading Subtest; Ecog, Everyday Cognition Scale; 2 C-IADL, aggregated PASS shopping and medication management score; d, Cohen's D; ω, Cohen's W (omega); β, standardized beta coefficients.
Generalized linear regression models of functional outcome measures controlled for age, education, neighborhood, and literacy.

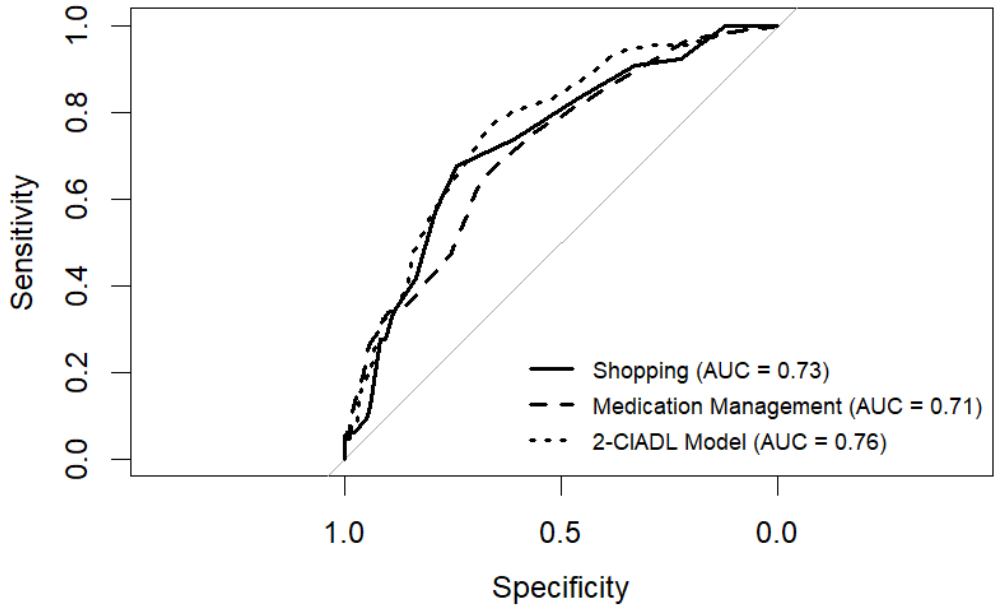
Table S2 – Performance Assessment of Self-Care Skills (PASS) Classification Functions; Actuarial Diagnosis Method

	Shopping	Medication Management	Critical Information Retrieval	2 C-IADL
Optimal Cut-Off, # of cues	6	4	*	9
Sensitivity	0.68	0.64	0	0.77
Specificity	0.74	0.69	1	0.66
PPV	0.48	0.42	*	0.45
NPV	0.87	0.84	0.26	0.89
AUC	0.73	0.71	0.58	0.76

*Unable to calculate optimal cut-off score

Abbreviations: PPV, positive predictive value; NPV, negative predictive value; AUC, area under the curve

Figure S1 – Sensitivity and specificity of individual PASS subtests and combined 2 C-IADL Receiver Operating Characteristics curves



Abbreviations: AUC, area under the curve