Supplemental Material

Statistically-Derived Subtypes in Mild Cognitive Impairment: A Latent Profile Analysis

Joel Eppig, MS; Emily C. Edmonds, PhD; Laura Campbell, BA; Mark Sanderson, BA; Lisa Delano-Wood, PhD; and Mark W. Bondi, PhD for the Alzheimer's Disease Neuroimaging Initiative*

Index:

Table e-1: Correlations between neuropsychological test variables in the entire ADNI corpus

	Clock Drawing Test	MMSE Pentagons	Animal Fluency	Boston Naming Test	TMT, Part A	TMT, Part B	AVLT Recall	AVLT Recognition
Clock Drawing Test	1	-.107	.254	.318	-.246	-.345	.226	.220
MMSE Pentagons	-.107	1	-.132	-.147	.199	.206	-.101	-.097
Animal Fluency	.254	-.132	1	.486	-.366	-.412	.427	.309
Boston Naming Test	.318	-.147	.486	1	-.253	-.388	.281	.208
TMT, Part A	-.246	.199	-.366	-.253	1	.605	-.211	-.197
TMT, Part B	-.345	.206	-.412	-.388	.605	1	-.291	-.284
AVLT Recall	.226	-.101	.427	.281	-.211	-.291	1	.631
AVLT Recognition	.220	-.097	.309	.208	-.197	-.284	.631	1

Statistical significance for all neuropsychological test intercorrelations: $p \leq 0.003$. Pentagons: n= 923, other 7 measures: n=1066.
Abbreviations: MMSE = Mini-Mental State Examination; TMT = Trail Making Test; AVLT = Rey Auditory Verbal Learning Test

Table e-2: Standardized Regression Based Formulas from Robust Normal Controls

Variable	Adj. R^2	SEE	Constant	β_{Age}	$\beta_{Education}$	β_{Gender}
MMSE Pentagons	0.011	1.004	0.149	0.021	-0.021	0.135
Clock Drawing Test	0.125	0.860	11.330	-0.043	0.087	-0.012
√ (Animal Fluency)	0.119	0.576	4.690	-0.019	0.074	0.093
BNT	0.072	2.016	29.084	-0.041	0.153	-0.572
Lg_{10}(TMT, Part A)	0.071	0.130	1.137	0.006	-0.006	-0.001
1/√(TMT, Part B)	0.138	0.020	0.187	-0.001	0.002	0.004
AVLT Recall	0.043	3.625	12.511	-0.106	0.164	1.089
AVLT Recognition	0.004	2.287	13.676	-0.019	0.029	0.553

Abbreviations: Adj. R^2 = Adjusted R^2; SEE = standard error of the estimate; MMSE = Mini-Mental State Examination; BNT= Boston Naming Test; Lg10 = Logarithm 10; TMT = Trail Making Test; AVLT = Rey Auditory Verbal Learning Test

Table e-3: Average Latent Class Probabilities for Most Likely Latent Class Membership (Row) by Latent Class (Column)

	Mixed MCI Class	**Amnestic MCI Class**	**LPA-Derived Normal Class**
Mixed MCI Class	0.878	0.109	0.013
Amnestic MCI Class	0.035	0.908	0.057
LPA-Derived Normal Class	0.001	0.107	0.892

Abbreviations: MCI = Mild Cognitive Impairment; LPA = Latent Profile Analysis

Table e-4: Distribution of Subsample Variables Across Latent Classes

	MMSE Pentagons		*CSF Biomarkers*		*APOE Alleles*		*Longitudinal Data*	
	n	**Proportion of Class**	***n***	**Proportion of Class**	***n***	**Proportion of Class**	***n***	**Proportion of Class**
Mixed MCI Class	95	89.62%	52	49.06%	104	98.11%	103	97.27%
Amnestic MCI Class	374	82.20%	237	52.09%	450	98.90%	429	94.29%
LPA-Derived Normal Class	194	79.18%	133	54.29%	242	98.78%	224	91.43%

Abbreviations: MMSE = Mini-Mental State Examination; CSF = Cerebrospinal Fluid; APOE = Apolipoprotein E; MCI = Mild Cognitive Impairment; LPA = Latent Profile Analysis

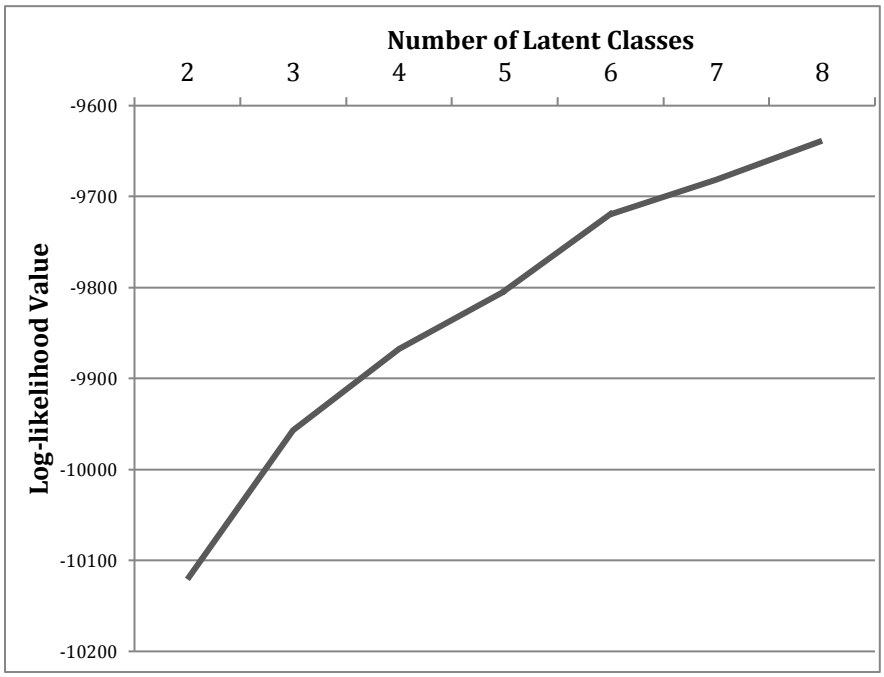

Figure e-1: Scree-Plot of Log-likelihood Values from each LPA solution.