Supplementary Materials

Table S1. Demographic characteristics and social network conditions of participants excluded due to missing data and stratified by cognitive resilience status

	Cognitively resilient		**Total (N=14)**	**p-value**
	No (N=3)	**Yes (N=11)**		
Sex, n (%)				0.8368
Male	1 (33.3%)	3 (27.3%)	4 (28.6%)	
Female	2 (66.7%)	8 (72.7%)	10 (71.4%)	
Education, n (%)				0.5680
High school graduate or lower	2 (66.7%)	4 (36.4%)	6 (42.9%)	
Some college	0 (0.0%)	2 (18.2%)	2 (14.3%)	
College graduate	1 (33.3%)	5 (45.5%)	6 (42.9%)	
Age (years), Exam 8, Median (25^{th} – 75^{th})	80 (80, 81)	82 (81, 83)	81 (80, 82)	0.0785
How many friends?, n (%)				0.9227

≤2	1 (33.3%)	4 (36.4%)	5 (35.7%)	
>2	2 (66.7%)	7 (63.6%)	9 (64.3%)	
How many friends see a month?, n (%)				0.7069
≤2	2 (66.7%)	6 (54.5%)	8 (57.1%)	
>2	1 (33.3%)	5 (45.5%)	6 (42.9%)	
How many relatives?, n (%)				-
≤2	0 (0.0%)	0 (0.0%)	0 (0.0%)	
>2	3 (100.0%)	11 (100.0%)	14 (100.0%)	
How many relatives see a month?, n (%)				0.8368
≤2	1 (33.3%)	3 (27.3%)	4 (28.6%)	
>2	2 (66.7%)	8 (72.7%)	10 (71.4%)	
Participate in any groups?, n (%)				0.5708
No	1 (33.3%)	2 (18.2%)	3 (21.4%)	
Yes	2 (66.7%)	9 (81.8%)	11 (78.6%)	

How often do you go to religious meetings?, n (%)				0.5879
Never or almost never/Once or twice a year	0 (0.0%)	1 (9.1%)	1 (7.1%)	
Every few months or more frequently	3 (100.0%)	10 (90.9%)	13 (92.9%)	
Someone to listen to you?, n (%)				0.5708
None/a little of the time	1 (33.3%)	2 (18.2%)	3 (21.4%)	
Some/most/all of the time	2 (66.7%)	9 (81.8%)	11 (78.6%)	
Someone to give you advice?, n (%)				0.4250
None/a little of the time	0 (0.0%)	2 (18.2%)	2 (14.3%)	
Some/most/all of the time	3 (100.0%)	9 (81.8%)	12 (85.7%)	
Someone shows love?, n (%)				-
None/a little of the time	0 (0.0%)	0 (0.0%)	0 (0.0%)	
Some/most/all of the time	3 (100.0%)	11 (100.0%)	14 (100.0%)	
Someone gives emotional support?, n (%)				-
None/a little of the time	0 (0.0%)	0 (0.0%)	0 (0.0%)	

Some/most/all of the time	3 (100.0%)	11 (100.0%)	14 (100.0%)	
As much contact as you like?, n (%)				-
None/a little of the time	0 (0.0%)	0 (0.0%)	0 (0.0%)	
Some/most/all of the time	3 (100.0%)	11 (100.0%)	14 (100.0%)	

Table S2. Spearman rank correlations among the eleven social network features

	b1	**b2**	**b3**	**b4**	**b5**	**b6**	**b7**	**b8**	**b9**	**b10**
b2	0.515									
	p<0.0001									
b3	0.281	0.165								
	p=0.001	p=0.050								
b4	0.221	0.358	0.394							
	p=0.008	p<0.0001	p<0.0001							
b5	0.054	0.146	0.021	0.006						
	p=0.527	p=0.085	p=0.809	p=0.948						
b6	0.063	0.086	0.089	0.121	0.381					
	p=0.461	p=0.310	p=0.294	p=0.154	p<0.0001					
b7	0.237	0.199	0.172	0.131	0.022	0.060				
	p=0.005	p=0.018	p=0.041	p=0.123	p=0.797	p=0.481				
b8	0.209	0.276	0.083	0.160	0.092	0.077	0.632			

	p=0.013	p=0.001	p=0.330	p=0.057	p=0.278	p=0.364	p<0.0001			
b9	0.112	0.046	0.206	0.156	-0.192	-0.047	0.370	0.198		
	p=0.186	p=0.591	p=0.014	p=0.065	p=0.022	p=0.578	p<0.0001	p=0.018		
b10	0.137	0.190	-0.028	0.136	0.004	-0.097	0.398	0.518	0.154	
	p=0.105	p=0.024	p=0.743	p=0.108	p=0.963	p=0.255	p<0.0001	p<0.0001	p=0.068	
b11	0.069	0.153	0.158	0.193	0.059	0.039	0.579	0.430	0.213	0.440
	p=0.417	p=0.069	p=0.061	p=0.022	p=0.488	p=0.649	p<0.0001	p<0.0001	p=0.011	p<0.0001

Table S3. Selection count of social network indices through Minimum Redundancy Maximum Relevance approach with 5-fold cross-validation across 100 repetitions.

	Count	**Percentage (%)**
Someone shows love	407	81.4
How many relatives	364	72.8
Someone gives emotional support	342	68.4
Participate in any groups	297	59.4
How many friends see a month	284	56.8
How often do you go to religious meetings	240	48.0
As much contact as you like	208	41.6
How many friends	175	35.0
How many relatives see a month	74	14.8
Someone to give you advice	45	9.0
Someone to listen to you	44	8.8

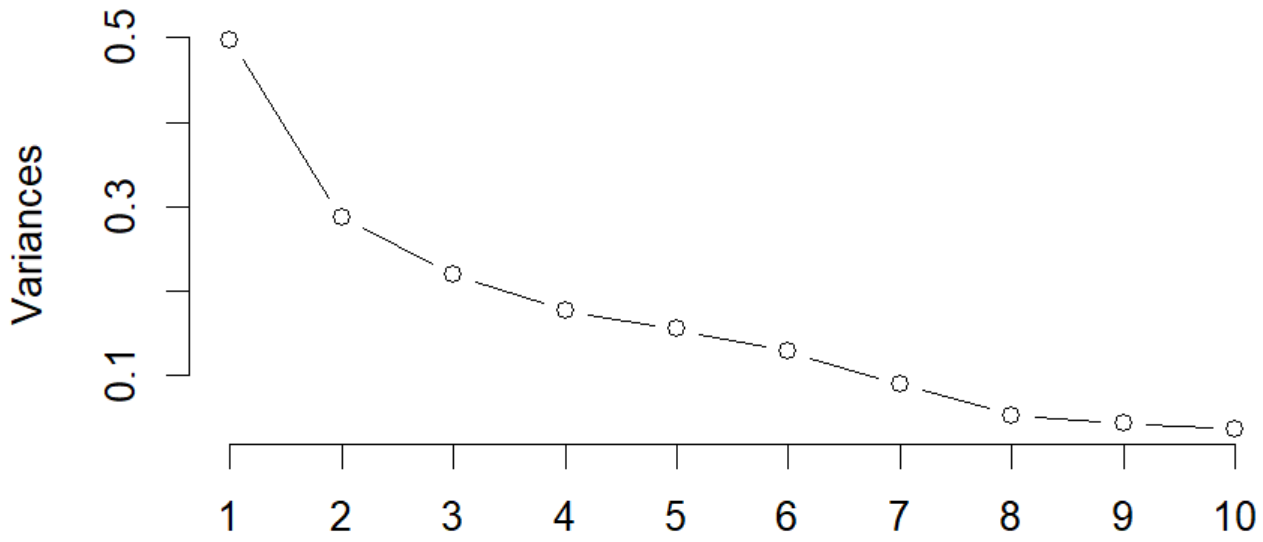


Figure S1. Proportion of variance explained by each principal component

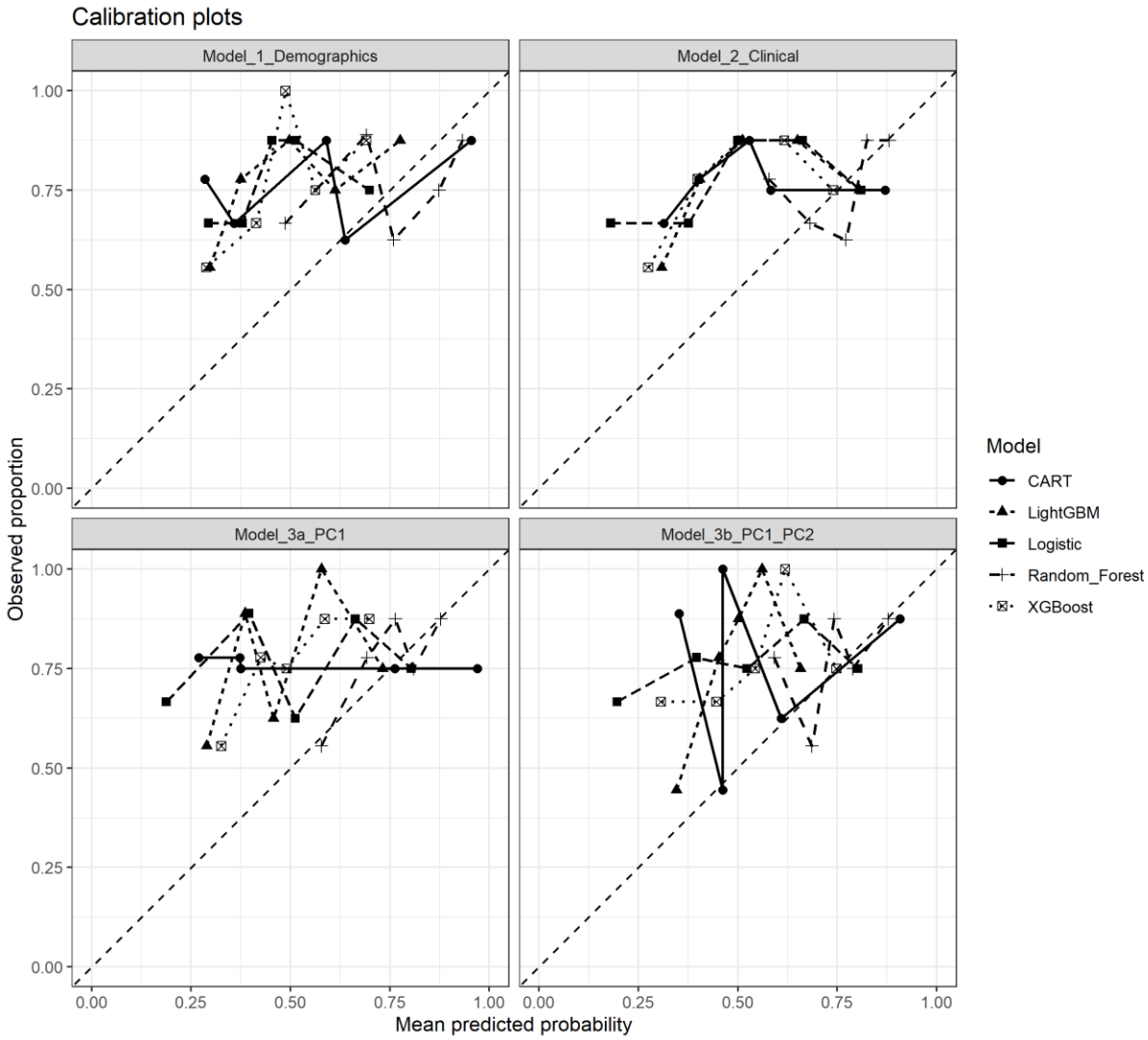


Figure S2. Calibration of predicted cognitive resilience probabilities across candidate models

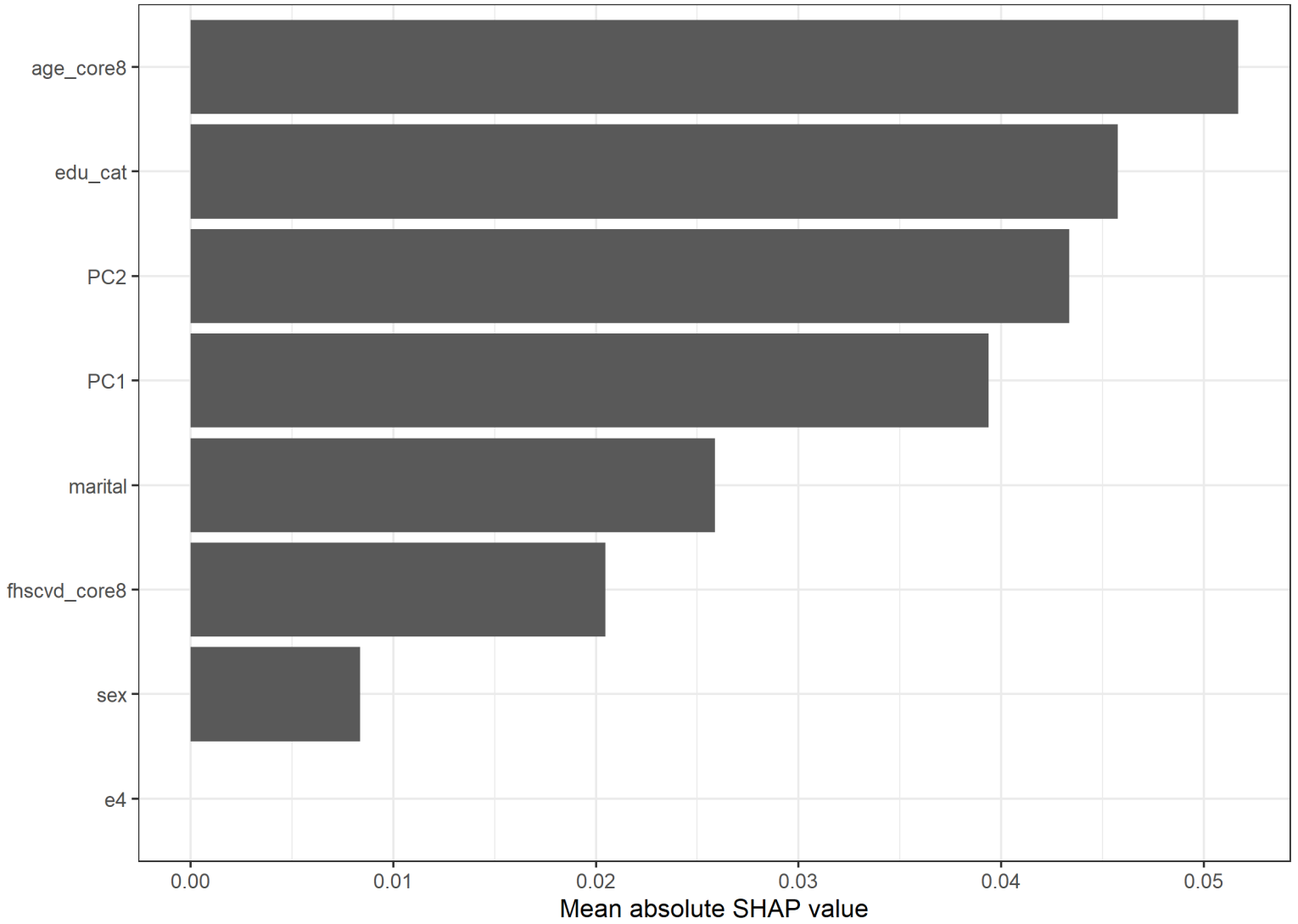


Figure S3. SHAP bar plot for the LightGBM model incorporating PC1 and PC2