

Supplemental Table 1. Associations between visual impairment (NEI VFQ) and cognitive function at Visit 1 and SOL-INCA, on average 7-years later. Additional modeling steps including sequential adjustments to covariables.

Visit 1 Results

Outcome	M1 β(SE)	M1_1 β(SE)	M1_2 β(SE)	M1_3 β(SE)	M1_4 β(SE)	M1_5 β(SE)	M1_6 β(SE)	M2_1 β(SE)	M2_2 β(SE)	M2_3 β(SE)	M2_4 β(SE)	M2_5 β(SE)	M2_6 β(SE)	M2 β(SE)
B-SEVLT-Sum	-0.12** (0.04)	-0.12** (0.04)	-0.12** (0.04)	-0.12** (0.04)	-0.12** (0.04)	-0.12** (0.04)	-0.12** (0.04)	-0.11** (0.04)	-0.10* (0.04)	-0.10** (0.04)	-0.10* (0.04)	-0.10** (0.04)	-0.10** (0.04)	-0.09* (0.04)
Unweighted n	662	662	662	662	662	662	662	662	662	662	662	662	662	662
B-SEVLT-Recall	-0.14** (0.04)	-0.14** (0.04)	-0.14** (0.04)	-0.14** (0.04)	-0.14** (0.04)	-0.14*** (0.04)	-0.14** (0.04)	-0.14*** (0.04)	-0.14*** (0.04)	-0.14*** (0.04)	-0.14*** (0.04)	-0.14*** (0.04)	-0.13*** (0.04)	-0.13** (0.04)
Unweighted n	665	665	665	665	665	665	665	665	665	665	665	665	665	665
Word Fluency	-0.12** (0.04)	-0.12** (0.04)	-0.10* (0.04)	-0.12** (0.04)	-0.11* (0.04)	-0.12** (0.04)	-0.11* (0.04)	-0.08 (0.04)	-0.06 (0.04)	-0.08 (0.04)	-0.07 (0.04)	-0.08 (0.04)	-0.07 (0.04)	-0.05 (0.04)
Unweighted n	662	662	662	662	662	662	662	662	662	662	662	662	662	662
Digit & Symbol	-0.24*** (0.04)	-0.23*** (0.04)	-0.24*** (0.04)	-0.24*** (0.04)	-0.23*** (0.04)	-0.24*** (0.04)	-0.24*** (0.04)	-0.18*** (0.04)	-0.19*** (0.03)	-0.19*** (0.03)	-0.18*** (0.03)	-0.19*** (0.03)	-0.19*** (0.03)	-0.17*** (0.03)
Unweighted n	656	656	656	656	656	656	656	656	656	656	656	656	656	656
Global Cognition	-0.16*** (0.03)	-0.16*** (0.03)	-0.15*** (0.03)	-0.16*** (0.03)	-0.15*** (0.03)	-0.16*** (0.03)	-0.16*** (0.03)	-0.13*** (0.03)	-0.12*** (0.03)	-0.13*** (0.03)	-0.13*** (0.03)	-0.13*** (0.03)	-0.13*** (0.03)	-0.12*** (0.03)
Unweighted n	665	665	665	665	665	665	665	665	665	665	665	665	665	665

Note 1: NEI VFQ = National Eye Institute Visual Function Questionnaire; standardized measure is used in the estimations

Note 2: Model 1 is crude (unadjusted)

Note 3: Model 1_s are adjusted for each of the sleep measures independently (i.e., M1_1: M1 + Sleepiness, M1_2: M1 + Insomnia, M1_3: M1 + Apnea, M1_4: M1 + Duration, M1_5: M1 + Nap, M1_6: M1 + Quality)

Note 4: Model 2_s are adjusted for each of the sleep measures and following sociodemographic factors: age, sex, and education (i.e., M2_1: M1 + Sleepiness + sociodemographic, M2_2: M1 + Insomnia + sociodemographic, M2_3: M1 + Apnea + sociodemographic, M2_4: M1 + Duration + sociodemographic, M2_5: M1 + Nap + sociodemographic, M2_6: M1 + Quality + sociodemographic)

Note 5: Model 2 is adjusted for all sleep measures (sleepiness, insomnia, apnea, duration, nap, quality) and full covariates (all sociodemographic characteristics, behavioral risk factors, acculturation measures, and health conditions)

Note 6: *** p<0.001; ** p<0.01; * p<0.05

SOL-INCA Results

	M1	M1_1	M1_2	M1_3	M1_4	M1_5	M1_6	M2_1	M2_2	M2_3	M2_4	M2_5	M2_6	M2
Outcome	β (SE)	β (SE)	β (SE)	β (SE)	β (SE)	β (SE)	β (SE)	β (SE)	β (SE)	β (SE)	β (SE)	β (SE)	β (SE)	β (SE)
B-SEVLT-Sum	-0.15*	-0.14*	-0.16*	-0.15**	-0.15*	-0.16**	-0.17**	-0.15**	-0.15**	-0.15**	-0.15**	-0.15**	-0.16***	-0.14**
Unweighted n	(0.06)	(0.06)	(0.06)	(0.06)	(0.06)	(0.06)	(0.06)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.04)
	663	663	663	663	663	663	663	663	663	663	663	663	663	663
B-SEVLT-Recall	-0.09	-0.09	-0.10	-0.09	-0.09	-0.10	-0.10	-0.09*	-0.08	-0.09*	-0.09*	-0.09*	-0.09*	-0.10**
Unweighted n	(0.05)	(0.05)	(0.06)	(0.05)	(0.05)	(0.05)	(0.06)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)
	662	662	662	662	662	662	662	662	662	662	662	662	662	662
Word Fluency	-0.23***	-0.23***	-0.24***	-0.23***	-0.23***	-0.24***	-0.25***	-0.19***	-0.20***	-0.18***	-0.19***	-0.19***	-0.20***	-0.18***
Unweighted n	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.04)	(0.05)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)
	663	663	663	663	663	663	663	663	663	663	663	663	663	663
Digit & Symbol	-0.24***	-0.24***	-0.25***	-0.24***	-0.24***	-0.25***	-0.26***	-0.20***	-0.20***	-0.20***	-0.20***	-0.20***	-0.21***	-0.19***
Unweighted n	(0.06)	(0.06)	(0.06)	(0.06)	(0.06)	(0.06)	(0.06)	(0.04)	(0.04)	(0.03)	(0.04)	(0.03)	(0.04)	(0.03)
	659	659	659	659	659	659	659	659	659	659	659	659	659	659
Global Cognition	-0.18***	-0.17***	-0.18***	-0.18***	-0.17***	-0.18***	-0.19***	-0.15***	-0.15***	-0.15***	-0.15***	-0.15***	-0.16***	-0.15***
Unweighted n	(0.05)	(0.05)	(0.05)	(0.04)	(0.05)	(0.04)	(0.05)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
	663	663	663	663	663	663	663	663	663	663	663	663	663	663

Note 1: NEI VFQ = National Eye Institute Visual Function Questionnaire; standardized measure is used in the estimations

Note 2: Model 1 is crude (unadjusted)

Note 3: Model 1_s are adjusted for each of the sleep measures independently (i.e., M1_1: M1 + Sleepiness, M1_2: M1 + Insomnia, M1_3: M1 + Apnea, M1_4: M1 + Duration, M1_5: M1 + Nap, M1_6: M1 + Quality)

Note 4: Model 2_s are adjusted for each of the sleep measures and following sociodemographic factors: age, sex, and education (i.e., M2_1: M1 + Sleepiness + sociodemographic, M2_2: M1 + Insomnia + sociodemographic, M2_3: M1 + Apnea + sociodemographic, M2_4: M1 + Duration + sociodemographic, M2_5: M1 + Nap + sociodemographic, M2_6: M1 + Quality + sociodemographic)

Note 5: Model 2 is adjusted for all sleep measures (sleepiness, insomnia, apnea, duration, nap, quality) and full covariates (all sociodemographic characteristics, behavioral risk factors, acculturation measures, and health conditions)

Note 6: *** p<0.001; ** p<0.01; * p<0.05

Supplemental Table 2. Associations between visual impairment (NEI VFQ) and cognitive change between Visit 1 and SOL-INCA, on average 7-years later. Additional modeling steps including sequential adjustments to covariables.

	M1	M1_1	M1_2	M1_3	M1_4	M1_5	M1_6	M2_1	M2_2	M2_3	M2_4	M2_5	M2_6	M2
Outcome	β(SE)	β(SE)	β(SE)	β(SE)	β(SE)	β(SE)	β(SE)	β(SE)	β(SE)	β(SE)	β(SE)	β(SE)	β(SE)	β(SE)
B-SEVLT-Sum	-0.09 (0.07)	-0.08 (0.07)	-0.10 (0.08)	-0.08 (0.07)	-0.08 (0.07)	-0.10 (0.07)	-0.11 (0.07)	-0.09 (0.06)	-0.10 (0.06)	-0.09 (0.06)	-0.10 (0.06)	-0.10 (0.06)	-0.11 (0.06)	-0.09 (0.06)
Unweighted n	660	660	660	660	660	660	660	660	660	660	660	660	660	660
B-SEVLT-Recall	-0.02 (0.06)	-0.02 (0.05)	-0.02 (0.06)	-0.01 (0.05)	-0.01 (0.05)	-0.02 (0.06)	-0.03 (0.06)	-0.02 (0.05)	-0.00 (0.05)	-0.01 (0.05)	-0.01 (0.05)	-0.01 (0.05)	-0.02 (0.05)	-0.02 (0.05)
Unweighted n	662	662	662	662	662	662	662	662	662	662	662	662	662	662
Word Fluency	-0.17** (0.06)	-0.17** (0.06)	-0.20** (0.06)	-0.17** (0.06)	-0.17** (0.06)	-0.18** (0.06)	-0.21*** (0.06)	-0.15** (0.06)	-0.18** (0.06)	-0.16** (0.06)	-0.16** (0.06)	-0.17** (0.05)	-0.19** (0.06)	-0.17** (0.05)
Unweighted n	660	660	660	660	660	660	660	660	660	660	660	660	660	660
Digit & Symbol	-0.02 (0.08)	-0.03 (0.08)	-0.03 (0.08)	-0.02 (0.08)	-0.02 (0.08)	-0.02 (0.08)	-0.04 (0.09)	-0.03 (0.07)	-0.02 (0.07)	-0.02 (0.07)	-0.02 (0.07)	-0.02 (0.07)	-0.03 (0.07)	-0.00 (0.07)
Unweighted n	650	650	650	650	650	650	650	650	650	650	650	650	650	650
Global Cognition	-0.08 (0.08)	-0.08 (0.08)	-0.09 (0.08)	-0.07 (0.07)	-0.08 (0.08)	-0.09 (0.07)	-0.11 (0.08)	-0.07 (0.06)	-0.08 (0.07)	-0.07 (0.07)	-0.07 (0.07)	-0.08 (0.07)	-0.10 (0.07)	-0.07 (0.07)
Unweighted n	663	663	663	663	663	663	663	663	663	663	663	663	663	663

Note 1: NEI VFQ = National Eye Institute Visual Function Questionnaire; standardized measure is used in the estimations

Note 2: Model 1 is crude (unadjusted)

Note 3: Model 1_s are adjusted for each of the sleep measures independently (i.e., M1_1: M1 + Sleepiness, M1_2: M1 + Insomnia, M1_3: M1 + Apnea, M1_4: M1 + Duration, M1_5: M1 + Nap, M1_6: M1 + Quality)

Note 4: Model 2_s are adjusted for each of the sleep measures and following sociodemographic factors: age, sex, and education (i.e., M2_1: M1 + Sleepiness + sociodemographic, M2_2: M1 + Insomnia + sociodemographic, M2_3: M1 + Apnea + sociodemographic, M2_4: M1 + Duration + sociodemographic, M2_5: M1 + Nap + sociodemographic, M2_6: M1 + Quality + sociodemographic)

Note 5: Model 2 is adjusted for all sleep measures (sleepiness, insomnia, apnea, duration, nap, quality) and full covariates (all sociodemographic characteristics, behavioral risk factors, acculturation measures, and health conditions)

Note 6: *** p<0.001; ** p<0.01; * p<0.05

Missingness Analysis

Supplemental Table 3. Descriptive characteristics of excluded and included subsamples.

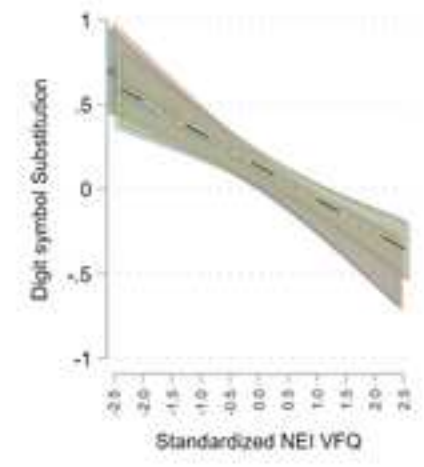
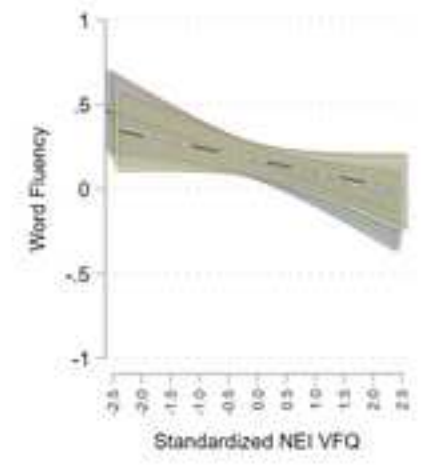
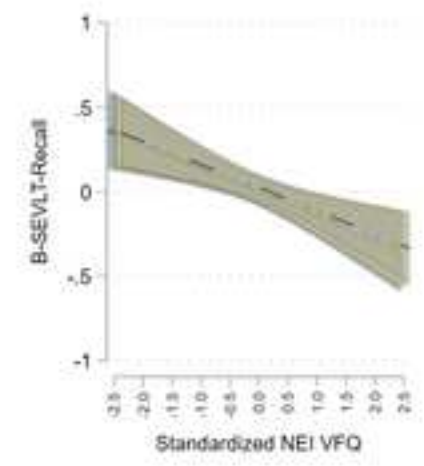
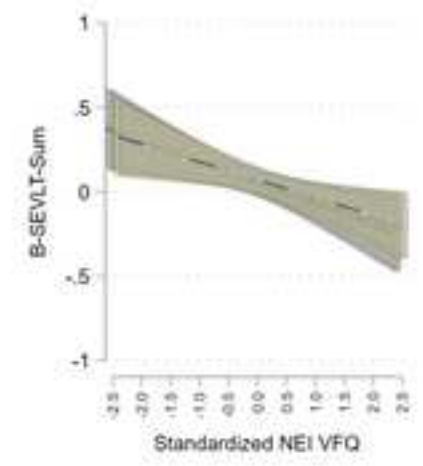
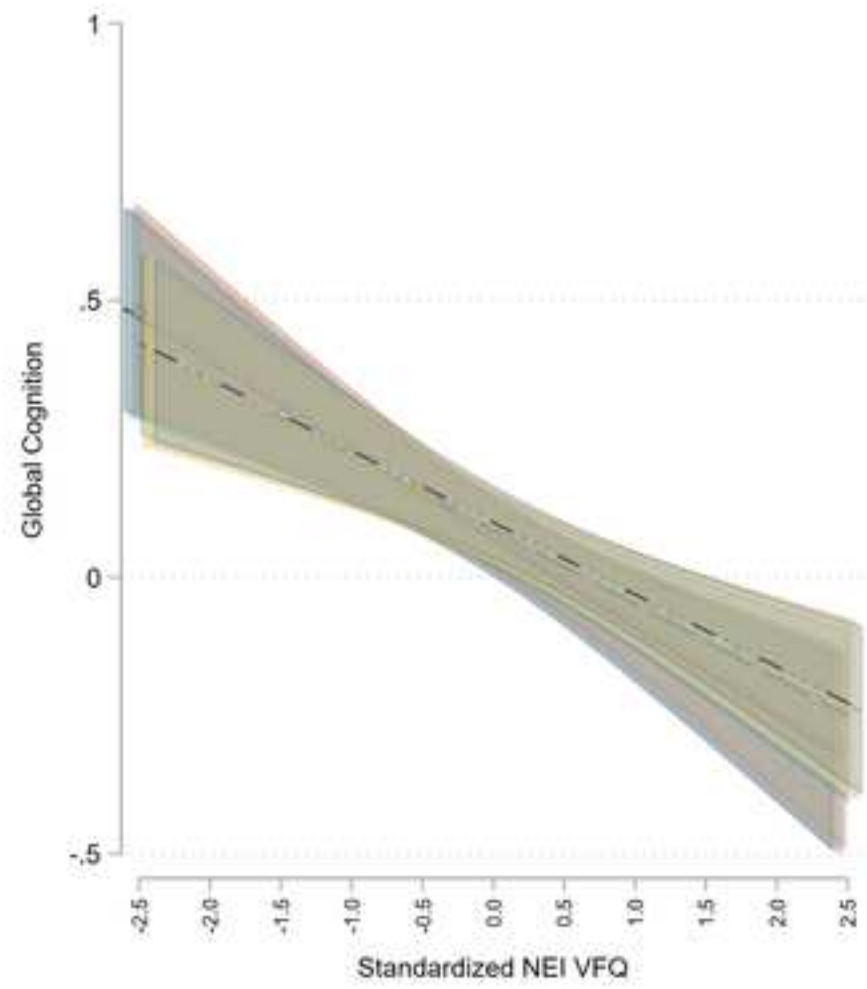
	Excluded (Unweighted n=181)	Included (Unweighted n=665)	Overall	P-value	Unweighted n
Sex (%)					
Female	55.2 (5.9)	52.7 (2.6)	53.3 (2.3)	0.71	846
Male	44.8 (5.9)	47.3 (2.6)	46.7 (2.3)		
Heritage (%)					
Cuban	69.7 (4.5)	69.7 (2.9)	69.7 (2.5)	0.08	845
Central/South American	16.9 (3.3)	22.9 (2.4)	21.5 (2.1)		
Other	13.4 (3.5)	7.4 (1.3)	8.8 (1.5)		
Education (%)					
Less than HS	19.0 (4.0)	26.3 (2.6)	24.5 (2.4)	0.13	845
HS or equivalent	19.1 (3.5)	21.5 (1.9)	20.9 (1.7)		
Greater than HS	62.0 (4.9)	52.2 (2.7)	54.6 (2.6)		
Marital Status (%)					
Single	21.1 (5.5)	17.3 (1.9)	18.2 (2.1)	0.71	843
Married/cohabit	49.8 (5.8)	52.8 (2.9)	52.1 (2.8)		
Separated/Divorced/Widowed	29.1 (4.4)	29.9 (2.5)	29.7 (2.2)		
Income (%)					
<20k	54.1 (5.7)	54.4 (3.5)	54.3 (3.1)	0.71	846
20-40k	25.8 (4.3)	25.0 (2.8)	25.2 (2.3)		
40k+	11.1 (4.1)	8.6 (1.9)	9.2 (2.2)		
Not reported	9.0 (2.3)	12.0 (1.5)	11.2 (1.3)		
Insurance (%)					
Uninsured	49.0 (6.2)	57.9 (2.8)	55.7 (2.8)	0.16	843
Insured/Medicaid	51.0 (6.2)	42.1 (2.8)	44.3 (2.8)		
Employment (%)					
Employed	35.1 (5.0)	44.6 (2.9)	42.3 (2.7)	0.19	845
Retired and not currently employed	25.4 (6.4)	17.3 (2.9)	19.3 (2.9)		
Unemployed	39.5 (5.5)	38.1 (2.7)	38.5 (2.6)		
Alcohol (%)					
Never	44.5 (5.6)	32.5 (2.2)	35.4 (2.2)	0.08	844
Former	15.7 (3.4)	20.8 (2.2)	19.5 (1.9)		
Current	39.8 (5.2)	46.8 (2.8)	45.0 (2.5)		

Smoking (%)						
Never	51.1 (5.7)	50.2 (2.7)	50.5 (2.5)	0.62	843	
Former	31.8 (5.9)	28.3 (2.7)	29.1 (2.3)			
Current	17.0 (3.7)	21.5 (1.9)	20.4 (1.7)			
Physical Activity (%)						
No	43.2 (5.7)	45.9 (2.7)	45.3 (2.5)	0.66	844	
Yes	56.8 (5.7)	54.1 (2.7)	54.7 (2.5)			
Language (%)						
Spanish preferred	87.7 (5.7)	93.4 (1.2)	92.0 (1.7)	0.10	845	
English preferred	1.7 (1.2)	2.8 (1.0)	2.6 (0.8)			
Both equally	10.6 (5.8)	3.7 (0.9)	5.4 (1.6)			
Hypertension (%)						
No	46.1 (5.7)	52.5 (2.3)	50.9 (2.3)	0.30	846	
Yes	53.9 (5.7)	47.5 (2.3)	49.1 (2.3)			
Diabetes (%)						
No	70.0 (5.6)	71.5 (2.8)	71.2 (2.7)	0.79	846	
Yes	30.0 (5.6)	28.5 (2.8)	28.8 (2.7)			
CHD (%)						
No	95.8 (1.6)	91.8 (1.7)	92.8 (1.4)	0.09	844	
Yes	4.2 (1.6)	8.2 (1.7)	7.2 (1.4)			
Heart Failure (%)						
No	99.7 (0.3)	97.1 (1.1)	97.7 (0.9)	0.01	843	
Yes	0.3 (0.3)	2.9 (1.1)	2.3 (0.9)			
Stroke/TIA (%)						
No	95.9 (2.3)	96.1 (1.6)	96.1 (1.2)	0.92	844	
Yes	4.1 (2.3)	3.9 (1.6)	3.9 (1.2)			
Age (mean, SD)	58.9 (8.0)	57.4 (8.1)	57.8 (8.1)	0.20	846	
BMI (mean, SD)	29.1 (4.9)	29.7 (5.6)	29.6 (5.5)	0.36	844	
Acculturation - language (mean, SD)	1.4 (0.5)	1.4 (0.6)	1.4 (0.6)	0.80	845	

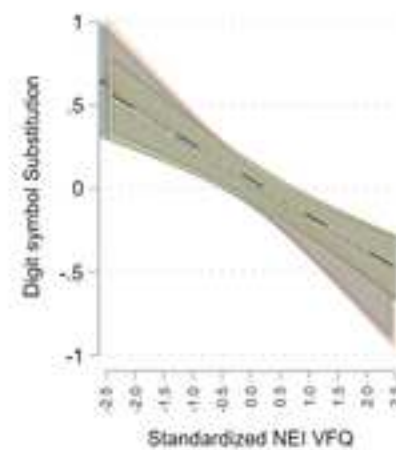
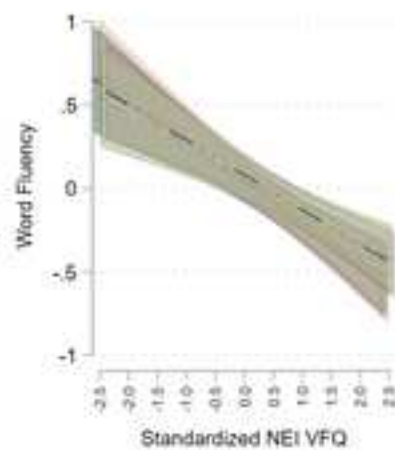
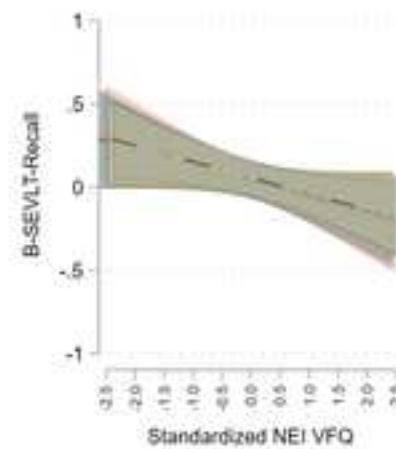
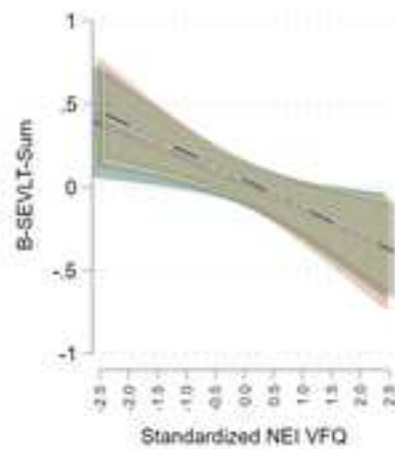
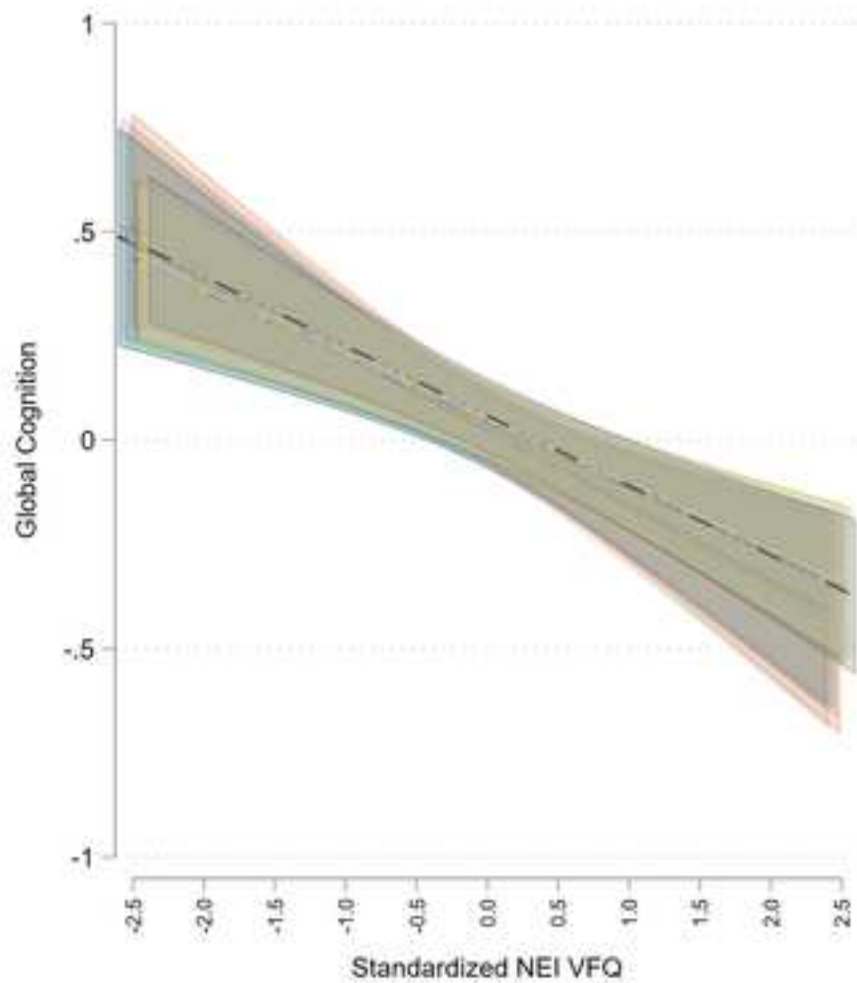
Note 1: Variables are measured at Visit 1

Note 2: HS=High School, CHD=Coronary heart disease, TIA=Transient ischemic attack, BMI=Body mass index, SD=standard deviation

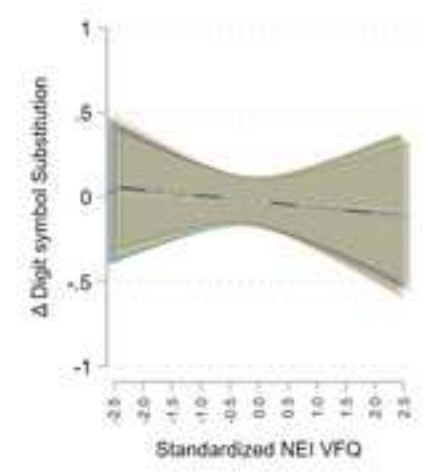
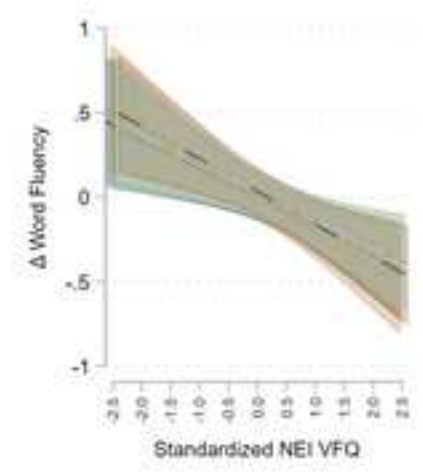
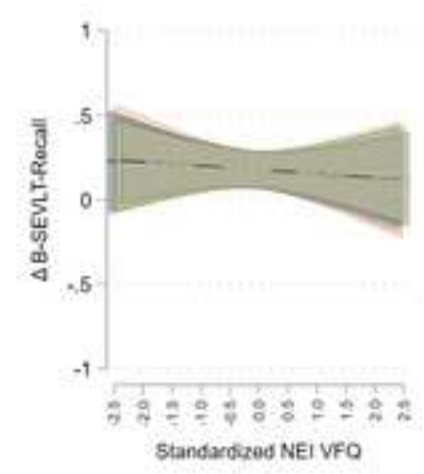
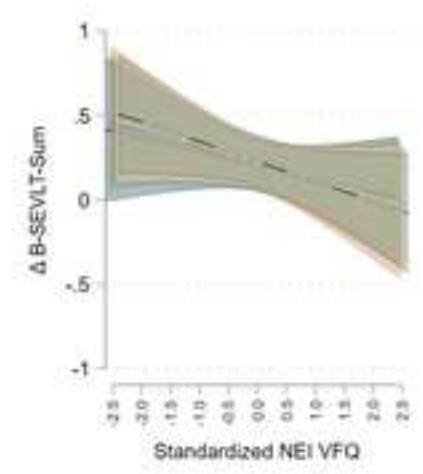
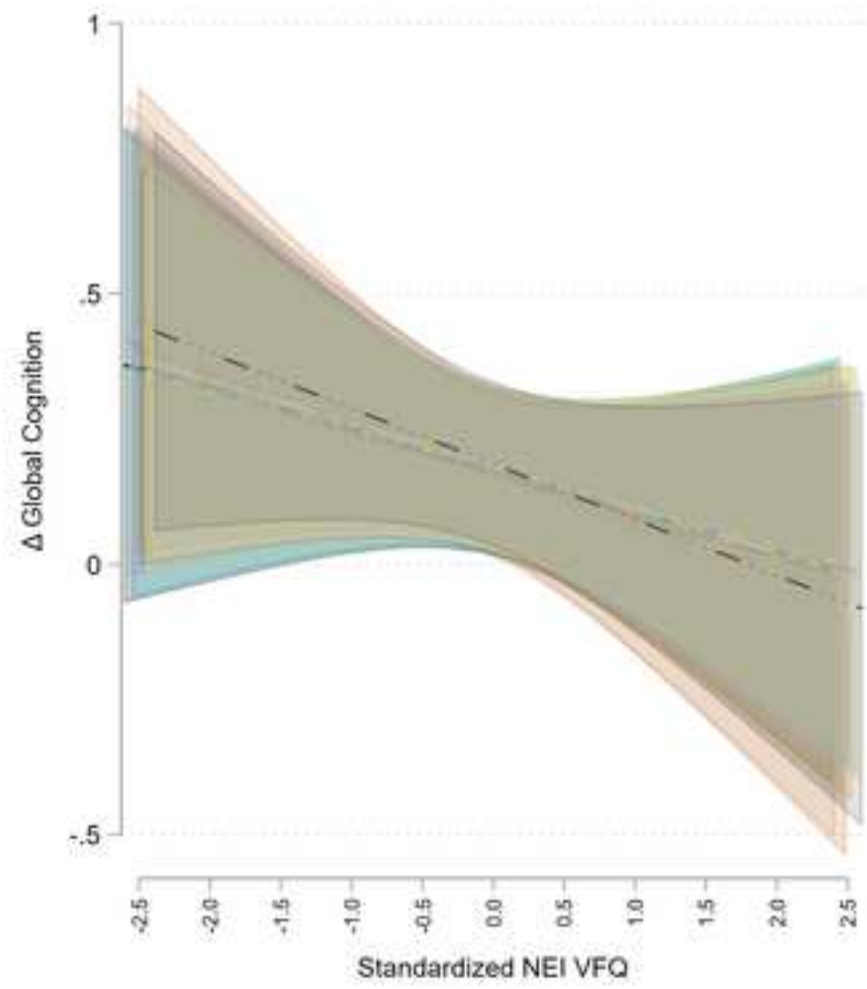
Note 3: Survey adjusted chi-squared tests, t-tests were used for categorical and continuous variables, respectively.



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|-------------|---------------|-------------------|-------------------|-------------------|-------------------|
| — Model 1_1 | - - Model 1_2 | - · · · Model 1_3 | · · · · Model 1_4 | - · · · Model 1_5 | · · · · Model 1_6 |
| — Model 2_1 | - - Model 2_2 | - · · · Model 2_3 | — Model 2_4 | — Model 2_5 | - · · · Model 2_6 |



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|-------------|-----------------|-------------------|---------------------|-------------------|---------------------|
| — Model 1_1 | - - - Model 1_2 | - · · · Model 1_3 | · · · · · Model 1_4 | - · · · Model 1_5 | · · · · · Model 1_6 |
| — Model 2_1 | - - - Model 2_2 | - · · · Model 2_3 | — Model 2_4 | — Model 2_5 | - · · · Model 2_6 |



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|-------------|---------------|-------------------|-------------------|-------------------|-------------------|
| — Model 1_1 | - - Model 1_2 | - · · · Model 1_3 | · · · · Model 1_4 | - · · · Model 1_5 | · · · · Model 1_6 |
| — Model 2_1 | - - Model 2_2 | - · · · Model 2_3 | — Model 2_4 | — Model 2_5 | - · · · Model 2_6 |

