

Table S1—Sample number and reduction in analytic sample size resulting from exclusionary criteria and model covariates missing values.

	Sample N	% Missing
45+	9714	
45+ who agreed to take the neurocognitive (NC) module	9623	
45+ who agreed to take the NC module and specified a Latino Background	9396	
45+ who agreed to take the NC module, specified a Latino Background, and have no missing values on all covariates	8950	4.7
45+ who agreed to take the NC module, specified a Latino Background, have no missing values on covariates, and no missing exposure value	8676	3.1
Analytical Sample Sum SEVLT	8624	0.6
Analytical Sample SEVLT Recall	8622	0.6
Analytical Sample WF	8512	1.9
Analytical Sample DSS	8436	2.8

B-SEVLT=Brief-Spanish English Verbal Learning Test; DSS = Digit Symbol Substitution test of the Wechsler Adult Intelligence Scale-Revised; WF = Word/phonemic Fluency or Controlled Oral Word Association Test of the Multilingual Aphasia Examination.

Table S2—Association between sleep duration and neurocognitive function represented through six incremental models.

	SEVLT recall						
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
	b/se	b/se	b/se	b/se	b/se	b/se	b/se
Sleep duration							
Linear	0.250***	0.205***	0.072	0.036	0.032	0.033	0.032
	0.058	0.054	0.054	0.055	0.055	0.055	0.055
Quadratic	-0.017***	-0.014***	-0.006	-0.003	-0.003	-0.003	-0.003
	0.004	0.003	0.003	0.003	0.003	0.004	0.003

Data are b (standard error). Results are based on survey linear regression models using data from the Hispanic Community Health Study/Study of Latinos. Model 1: Unadjusted; Model 2: Model 1+ Sex, age, education; Model 3=Model 2 + Demographics (income, occupation, Latino background, language, study site); Model 4= Model 3+ Mental Health (depressive symptoms using the shortened Center for Epidemiological Studies Depression Scale, anxiety using the 10-item State-Trait Anxiety Inventory summary score); Model 5= Model 4 + Self-reported health conditions (diabetes, hypertension, stroke/transient ischemic attack); Model 6= Model 5 + Health behavior (smoker status, body mass index); Model 7 = Model 6 + Sleep variables (Epworth sleepiness scale, and sleep medication use). Quadratic Term=Second order polynomial of sleep duration. B-SEVLT=Brief-Spanish English Verbal Learning Test; DSS = Digit Symbol Substitution of the Wechsler Adult Intelligence Scale-Revised; WF = Word Fluency or Controlled Oral Word Association Test of the Multilingual Aphasia Examination.

*** P<0.01

Table S3—Association between sleep duration and neurocognitive function in middle-aged and older (45 to 74 years) Hispanics/Latino adults, with no self-reported stroke or TIA, HCHS/SOL 2008-2011.

	Model 1	Model 2	Model 3
	b/se	b/se	b/se
SEVLT sum			
Sleep duration			
Linear	0.329*** 0.059	0.304*** 0.058	0.115* 0.052
Quadratic	-0.023*** 0.004	-0.021*** 0.004	-0.008* 0.003
SEVLT recall			
Sleep duration			
Linear	0.292*** 0.059	0.271*** 0.06	0.058 0.057
Quadratic	-0.020*** 0.004	-0.018*** 0.004	-0.005 0.004
WF			
Sleep duration			
Linear	0.301*** 0.07	0.290*** 0.069	0.122 0.071
Quadratic	-0.021*** 0.004	-0.020*** 0.004	-0.009* 0.004
DSS			
Sleep duration			
Linear	0.284*** 0.059	0.249*** 0.06	0.095* 0.041
Quadratic	-0.021*** 0.004	-0.019*** 0.004	-0.008** 0.003

*P<0.05; **P<0.01; ***P<0.001

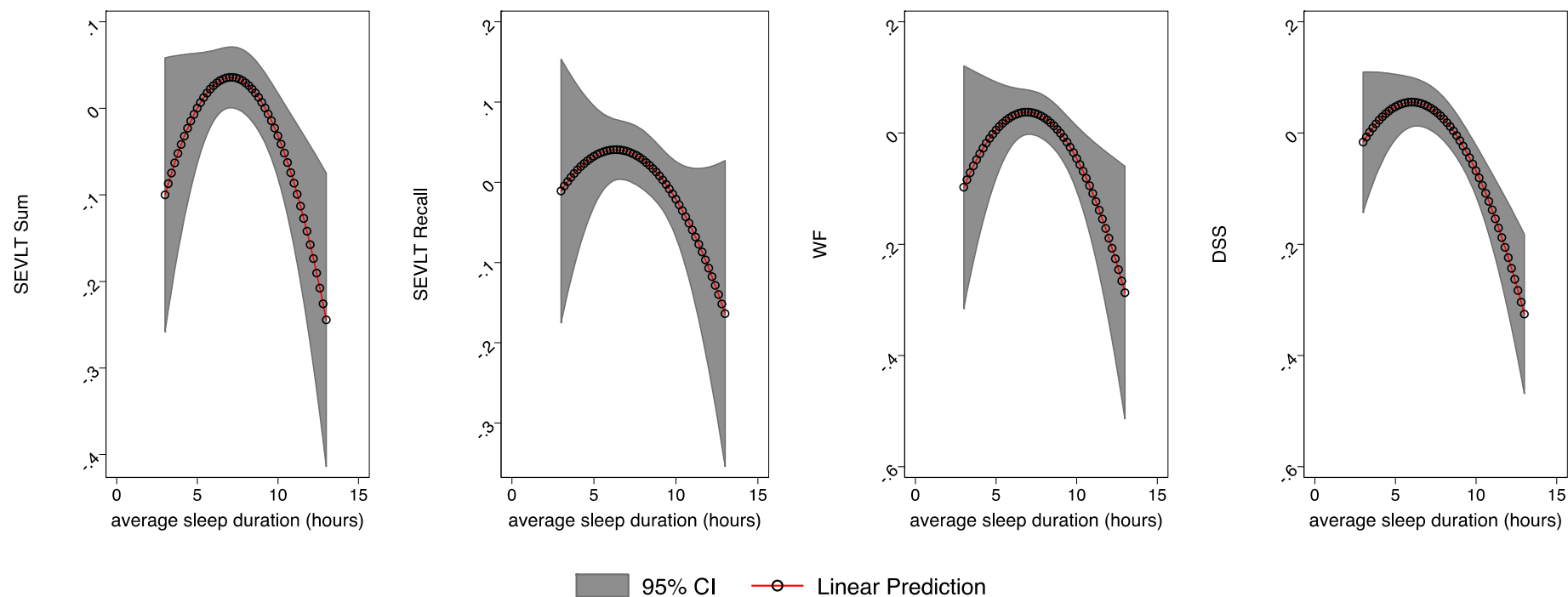
Data are beta-coefficient (standard error). Results are based on survey linear regression models using data from the Hispanic Community Health Study/Study of Latinos. M1 unadjusted; M2 adjusted for age, sex and education; M3 adjusted for all model covariates (age, sex, education, income, occupation, Latino background, language preference, study site, BMI, smoker status, diabetes, hypertension, depressive symptoms using the shortened Center for Epidemiological Studies Depression Scale, anxiety using the 10-item State-Trait Anxiety Inventory summary score, Epworth sleepiness scale, and sleep medication). Quadratic Term=Second order polynomial of sleep duration. B- SEVLT=Brief-Spanish English Verbal Learning Test; DSS = Digit Symbol Substitution test of the Wechsler Adult Intelligence Scale-Revised; WF = Word/phonemic Fluency or Controlled Oral Word Association Test of the Multilingual Aphasia Examination.

Table S4—Association between percentile groups of sleep duration and neurocognitive function in middle-aged and older (45 to 74 years) Hispanics/Latino adults, HCHS/SOL 2008-2011.

	SEVLT Sum		SEVLT Recall		WF		DSS	
	b/se	b/se	b/se	b/se	b/se	b/se	b/se	b/se
	M1	M2	M1	M2	M1	M2	M1	M2
Sleep Duration (%tiles)								
<5th	-0.156**	-0.068	-0.114*	0.007	-0.146	-0.08	0.006	0.033
	0.051	0.049	0.053	0.054	0.08	0.082	0.055	0.039
5th-<25th	-0.013	0.006	-0.033	-0.001	0.007	0.022	0.035	0.027
	0.033	0.031	0.032	0.03	0.041	0.033	0.033	0.026
25th-<75th	ref	ref	ref	ref	ref	ref	ref	ref
	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
75th-<95th	-0.088**	-0.052	-0.108**	-0.072*	-0.098**	-0.078*	-0.086***	-0.078***
	0.031	0.029	0.034	0.03	0.035	0.031	0.026	0.023
>=95th	-0.255***	-0.159***	-0.191***	-0.086	-0.215***	-0.133*	-0.256***	-0.183***
	0.052	0.047	0.051	0.048	0.059	0.056	0.039	0.038

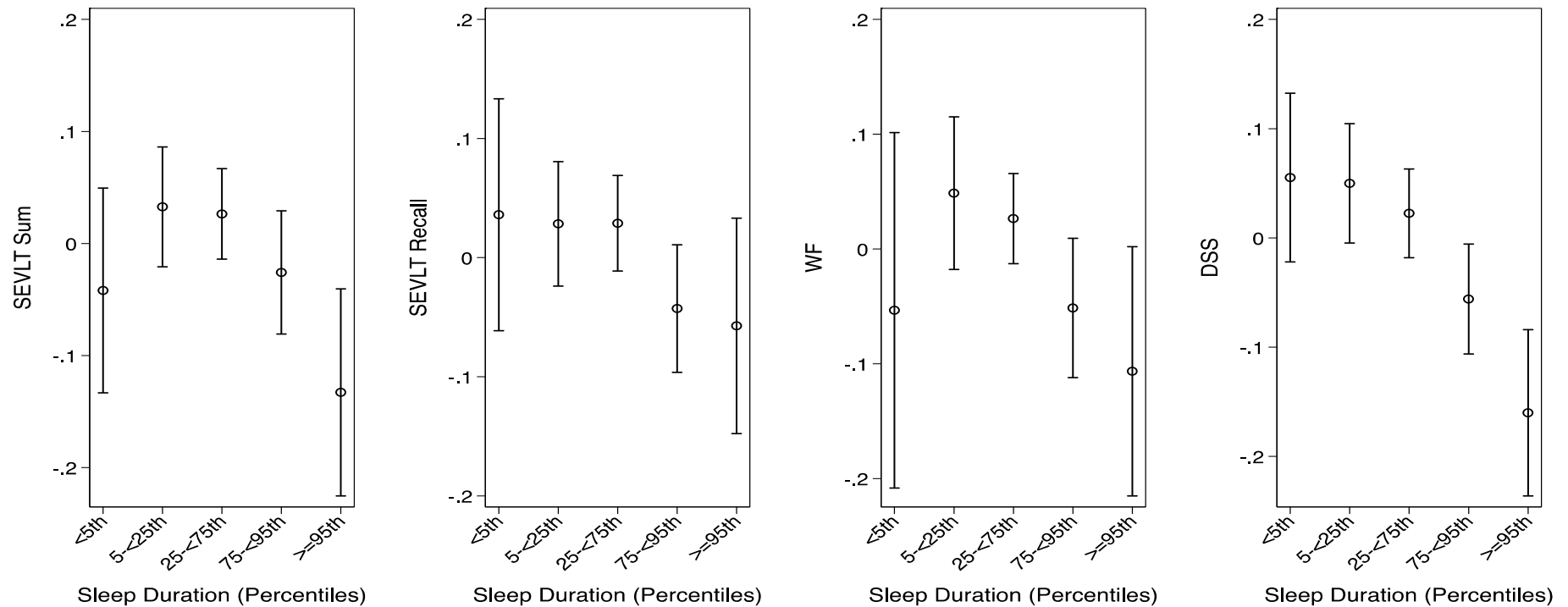
Model 1 is adjusted for age, sex, and education. Model 2 is adjusted for age, sex, education, income, occupation, Latino background, language, study site, BMI, smoker status, diabetes, hypertension, stroke/transient ischemic attack, depressive symptoms using the shortened Center for Epidemiological Studies Depression Scale, anxiety using the 10-item State-Trait Anxiety Inventory summary score, smoking status, body mass index, Epworth sleepiness scale, and sleep medication. The x-axis is the weighted average for weekday and weekend sleep duration in hours. The y-axis represents standardized neurocognitive test score in units of standard deviation. B-SEVLT= Brief-Spanish English Verbal Learning Test; DSS = Digit Symbol Substitution of the Wechsler Adult Intelligence Scale-Revised; WF = Word Fluency or Controlled Oral Word Association Test of the Multilingual Aphasia Examination.

Figure S1— Standardized neurocognitive score adjusted-mean by sleep duration of middle-aged and older (45 to 74 years) Hispanics/Latino adults, without self-reported stroke or TIA, HCHS/SOL 2008-2011.



Estimates and their 95% confidence bounds are derived from survey linear regression models using data from the Hispanic Community Health Study/Study of Latinos. The models were adjusted for age, sex, education, income, occupation, Latino background, language, center, BMI, smoker status, diabetes, hypertension, depressive symptoms using the shortened Center for Epidemiological Studies Depression Scale, anxiety using the 10-item State-Trait Anxiety Inventory summary score, smoking status, body mass index, Epworth sleepiness scale, and sleep medication use. The x-axis is the weighted average for weekday and weekend sleep duration in hours. The y-axis represents standardized neurocognitive test score in units of standard deviation. B-SEVLT= Brief-Spanish English Verbal Learning Test; DSS = Digit Symbol Substitution of the Wechsler Adult Intelligence Scale-Revised; WF = Word Fluency or Controlled Oral Word Association Test of the Multilingual Aphasia Examination.

Figure S2—Mean standardized neurocognitive scores over percentiles of sleep duration (5 categories) in middle-aged and older (45 to 74 years) Hispanics/Latino adults, HCHS/SOL 2008-2011.



Estimates and their 95% confidence bounds are derived from survey linear regression models using data from the Hispanic Community Health Study/Study of Latinos. The 5th percentile of sleep duration was ≤ 5.5 hours, the 5th to < 25th percentile was 5.51 to 7.0 hours, the 25th to < 75th percentile was 7.1 to 8.7 hours, the 75th to < 95th percentile was 8.7 hours to 10.0 hours and the 95th percentile was >10 hours of reported sleep duration. The models were adjusted for age, sex, education, income, occupation, Latino background, language, center, BMI, smoker status, diabetes, hypertension, stroke/transient ischemic attack, depressive symptoms using the shortened Center for Epidemiological Studies Depression Scale, anxiety using the 10-item State-Trait Anxiety Inventory summary score, smoking status, body mass index, Epworth sleepiness scale, and sleep medication use. The x-axis is the weighted average for weekday and weekend sleep duration in hours. The y-axis represents standardized neurocognitive test score in units of standard deviation. B-SEVL= Brief-Spanish English Verbal Learning Test; DSS = Digit Symbol Substitution of the Wechsler Adult Intelligence Scale-Revised; WF = Word Fluency or Controlled Oral Word Association Test of the Multilingual Aphasia Examination.