

**Supplemental Material S5.** Multivariable-adjusted associations of global and domain-specific cognitive performance with speech-in-noise performance after excluding ACHIEVE participants with hearing loss above 50 dB HL, ACHIEVE baseline (2018–20) and ARIC-NCS Visit 6/7 (2016–17/2018–19).

<b>Worse Cognitive Performance, per SD<sup>a</sup></b>	<b>Model 1: Covariates (N=569)<sup>b</sup></b>		<b>Model 2: Covariates + Other Predictors (N=556)<sup>c</sup></b>	
	<b>Estimate (95% CI)</b>	<b>P-value</b>	<b>Estimate (95% CI)</b>	<b>P-value</b>
Global	<b>-0.67 (-1.10, -0.24)</b>	<b>0.002</b>	<b>-0.78 (-1.18, -0.38)</b>	<b>&lt;0.001</b>
Language	<b>-0.53 (-0.94, -0.11)</b>	<b>0.01</b>	<b>-0.74 (-1.12, -0.36)</b>	<b>&lt;0.001</b>
Executive function	<b>-0.50 (-0.93, -0.06)</b>	<b>0.02</b>	<b>-0.60 (-1.01, -0.19)</b>	<b>0.004</b>
Memory	-0.31 (-0.69, 0.06)	0.10	<b>-0.40 (-0.74, -0.06)</b>	<b>0.02</b>

**Abbreviations:** ACHIEVE: Aging and Cognitive Health Evaluation in Elders; ARIC-NCS: Atherosclerosis Risk in Communities Neurocognitive Study; dB HL: decibels hearing level; CI: confidence interval; SD: standard deviation.

<sup>a</sup> Multivariable-adjusted linear regression to estimate change in the quick speech-in-noise score associated with every SD worse in cognitive performance.

<sup>b</sup> Model 1 adjusted for age, sex, race, field center, education, body mass index, smoking, hypertension, diabetes, and stroke.

<sup>c</sup> Model 2 adjusted for age, sex, race, field center, education, body mass index, smoking, hypertension, diabetes, stroke, intracranial volume, pure-tone average, total brain volume, fractional anisotropy, mean diffusivity, and white matter hyperintensities volume.