

Supplemental Material S14. Summary of the study findings, ACHIEVE baseline (2018–20) and ARIC-NCS Visit 6/7 (2016–17/2018–19).

Outcome	Predictor	Model 1 ^a (Individual predictor-outcome association)	Model 2 ^b (Independent predictor-outcome association)
Speech-in-noise performance (Quick Quick Speech-in-Noise [QuickSIN] test score)	Pure-tone audiometry (Pure-tone average [PTA])	Every SD (11 dB HL) worse in PTA was associated with worse QuickSIN (-5.16, 95% CI: -5.83, -4.50) when PTA was above the mean (≥ 33 dB HL).	Every SD (11 dB HL) worse in PTA was associated with worse QuickSIN (-4.89, 95% CI: -5.57, -4.21) when PTA was above the mean (≥ 33 dB HL).
	Brain imaging measures (Total and lobar volumes, white matter hyperintensities, and diffusion tensor imaging measures [fractional anisotropy, mean diffusivity])	Every SD worse temporal lobe volume was associated with worse QuickSIN (-0.82, 95% CI: -1.49, -0.16).	Adjusting for other predictors attenuated the temporal lobe-QuickSIN association (-0.30, 95% CI: -0.86, 0.26).
	Cognitive performance (Cognitive factor scores derived from a battery of 10 cognitive tests)	Every SD worse global cognitive performance was associated with worse QuickSIN (-0.97, 95% CI: -1.43, -0.50).	Every SD worse global cognitive performance was associated with worse QuickSIN (-0.90, 95% CI: -1.30, -0.50).

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

^a For individual association between each predictor and speech-in-noise performance, regression models adjusted for covariates including age, sex, race, field center, education, body mass index, smoking, hypertension, diabetes, stroke and intracranial volume (if brain imaging measures are predictors of interest).

^b For independent association between each predictor and speech-in-noise performance, regression models adjusted for covariates as well as other predictors (i.e., for PTA-QuickSIN association, additionally adjusting for brain imaging measures and cognitive performance; for brain imaging-QuickSIN association, additionally adjusting for PTA and cognitive performance; for cognitive performance-QuickSIN association, additionally adjusting for PTA and brain imaging measures).