

Supplemental Material S11. Multivariable-adjusted associations of magnetic resonance imaging (MRI) measures with speech-in-noise performance adjusting for pure-tone average (PTA) or cognition only, ACHIEVE baseline (2018–20) and ARIC-NCS Visit 6/7 (2016–17/2018–19).

Worse MRI Measures, per SD ^a	Covariates + PTA (N=584) ^b		Covariates + Global Cognition (N=584) ^c	
	Estimate (95% CI)	P-value	Estimate (95% CI)	P-value
Brain Volumes				
Total brain	-0.03 (-0.80, 0.74)	0.95	0.35 (-0.58, 1.27)	0.46
Temporal lobe	-0.54 (-1.09, 0.02)	0.06	-0.56 (-1.23, 0.11)	0.10
Frontal lobe	-0.41 (-0.99, 0.16)	0.16	-0.07 (-0.76, 0.62)	0.84
Occipital lobe	-0.01 (-0.49, 0.47)	0.97	0.03 (-0.55, 0.60)	0.93
Parietal lobe	0.02 (-0.55, 0.60)	0.94	-0.02 (-0.70, 0.66)	0.96
Deep gray subcortical structures	-0.25 (-0.70, 0.21)	0.29	-0.16 (-0.70, 0.39)	0.57
Fractional anisotropy	0.04 (-0.37, 0.45)	0.85	0.16 (-0.32, 0.65)	0.51
Mean diffusivity	0.02 (-0.32, 0.36)	0.90	0.07 (-0.34, 0.48)	0.74
White matter hyperintensities volume	-0.23 (-0.56, 0.11)	0.19	-0.17 (-0.57, 0.22)	0.39

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

^a Multivariable-adjusted linear regression to estimate change in the quick speech-in-noise score associated with every SD worse in brain MRI measures.

^b Models adjusted for age, sex, race, field center, education, body mass index, smoking, hypertension, diabetes, stroke, intracranial volume, and pure-tone average.

^c Models adjusted for age, sex, race, field center, education, body mass index, smoking, hypertension, diabetes, stroke, intracranial volume, and global cognitive performance.