

Supplemental Material S4. Multivariable-adjusted associations of magnetic resonance imaging (MRI) measures 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).

Worse MRI Measures, per SD ^a	Model 1: Covariates (N=558) ^b		Model 2: Covariates + Other Predictors (N=556) ^c	
	Estimate (95% CI)	P-value	Estimate (95% CI)	P-value
Brain Volumes				
Total brain	-0.14 (-0.99, 0.71)	0.74	0.15 (-0.61, 0.91)	0.70
Temporal lobe	-0.68 (-1.29, -0.07)	0.03	-0.40 (-0.95, 0.16)	0.16
Frontal lobe	-0.36 (-1.00, 0.28)	0.27	-0.23 (-0.80, 0.34)	0.43
Occipital lobe	0.03 (-0.50, 0.57)	0.91	0.10 (-0.37, 0.57)	0.66
Parietal lobe	-0.05 (-0.68, 0.59)	0.88	0.07 (-0.49, 0.63)	0.81
Deep gray subcortical structures	-0.28 (-0.79, 0.23)	0.28	-0.19 (-0.64, 0.26)	0.42
Fractional anisotropy	0.13 (-0.32, 0.58)	0.56	0.21 (-0.18, 0.61)	0.29
Mean diffusivity	0.10 (-0.27, 0.48)	0.59	0.18 (-0.15, 0.52)	0.29
White matter hyperintensities volume	-0.16 (-0.52, 0.21)	0.40	-0.09 (-0.41, 0.24)	0.59

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.

^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 Model 1 adjusted for age, sex, race, field center, education, body mass index, smoking, hypertension, diabetes, stroke, and intracranial volume.

^c Model 2 adjusted for age, sex, race, field center, education, body mass index, smoking, hypertension, diabetes, stroke, intracranial volume, pure-tone average, and global cognitive performance.