Supplemental Material

Gender Differences in the Association between Hearing Loss and Cognitive Function

Bowen Huang, MD, Guilan Cao, PhD, Yanran Duan, PhD, Siyu Yan, MD, Mingming Yan, PhD, Ping Yin, PhD; Hongwei Jiang, PhD
Table a Regression coefficients β (95% confidence intervals) of Hearing Loss and Hearing Aid Use for Cognitive Function (composite z-score), NHANES 2011-2012

|                 | Model 1               | Model 2               | Model 3               | Model 4               |
|-----------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Male            |                       |                       |                       |                       |
| Hearing loss    | -12.29 (-20.01 to -4.56)** | -7.38 (-13.69 to -1.07)* | -7.26 (-12.28 to -2.24)** | -7.37 (-11.98 to -2.75)** |
| Hearing aid use | 56.37 (28.11 to 84.64)** | 37.89 (13.92 to 61.86)** | 39.78 (14.92 to 64.64)** | 38.84 (13.23 to 64.44)** |
| Female          |                       |                       |                       |                       |
| Hearing loss    | -8.56 (-11.68 to -5.44)** | -4.49 (-9.51 to 0.52) | -4.83 (-10.83 to 1.17) | -4.96 (-10.70 to 0.79) |
| Hearing aid use | 47.56 (18.93 to 76.19)** | 17.29 (-14.38 to 48.96) | 19.45 (-15.56 to 54.46) | 17.38 (-12.51 to 47.27) |

Notes: β-Coefficients indicated the change in composite z-scores when hearing loss increased by 10 dB or with hearing aid use. Adjusted covariates: Model 1 = hearing aid use, age. Model 2 = Model 1 + (race/ethnicity, education, marital status, poverty income ratio, total cholesterol and high-density lipoprotein cholesterol). Model 3 = Model 2 + (smoking status and alcohol consumption). Model 4 = Model 3 + (diabetes, hypertension and stroke). *P < 0.05; **P < 0.01.

Table a contains the result of multiple linear regression models that describe the gender differences in the relationship between hearing loss and cognitive function. In a fully adjusted model, when hearing loss was expressed as a continuous variable, hearing loss was statistically significantly associated with composite z-scores in males (β -7.37, 95% CI -11.98 to -2.75). In contrast, there was no association in females (β 38.84, 95% CI 13.23 to 64.44). Hearing aid use remained associated with higher cognitive scores only among males (β 38.84, 95% CI 13.23 to 64.44).