Food Insecurity and the Trajectory of Cognitive Function: A Longitudinal Study Using Data From the National Health and Aging Trends Study, 2012–2020

Nan Dou,[1] Alexandra Wennberg,[2] Lenis Chen-Edinboro,[3] Loretta Anderson,[4] Monique Brown,[5] and Muzi Na[1]

[1]The Pennsylvania State University; [2]Karolinska Institutet; [3]University of North Carolina Wilmington; [4]University of Maryland; and [5]University of South Carolina

Objectives: Despite plausible mechanisms, the association of food insecurity with trajectories of cognitive decline over time has only been investigated in a few studies. Our study aims to examine the longitudinal associations between food insecurity and cognitive function in a large nationally representative sample of older adults (≥65 y).

Methods: Cohort data from the National Health and Aging Trends Study 2012–2020 were analyzed (n = 5,524). In 2012, participants reported their food insecurity experience due to financial, social, and functional limitations (5 items) and their utilization of food assistance programs (FAP, 2 items). Participants were then classified as food secure (FS) without FAP, FS with FAP, and food insecure (FI). Cognitive function was measured via validated tests in three domains, i.e., immediate and delayed memory, executive function, and orientation. All individual test scores were standardized into z-scores, the mean of which was calculated as a combined cognitive function z-score. Mixed-effect models with a random intercept were used to examine how baseline food insecurity was associated with the combined and individual cognitive z-scores over time. Models were adjusted for baseline sociodemographic variables, cognitive z-score, depressive and anxiety symptoms, BMI, diabetes, and hypertension.

Results: In 2012, 86.4% of the participants were FS without FAP, 10.6% were FS with FAP, and 3.0% were FI. In adjusted models, except for executive function z-score, cognitive decline over time was significant in all cognitive function z-scores (beta coefficients ranged from −0.06 to −0.03 SD per year, all p-values < 0.001). Baseline food insecurity status was not associated with any baseline cognitive z-scores; however, it was associated with cognitive decline in combined cognitive function z-score (p for interaction = 0.0002) and orientation z-score (p for interaction < 0.0001).

Conclusions: Compared to participants who were FS without FAP, older adults who were FS using FAP or FI had faster deterioration of cognitive function as observed in the combined and the orientation cognitive z-scores.

Funding Sources: The Broadhurst Career Development Professorship for the Study of Health Promotion and Disease Prevention (MN). The National Institute of Mental Health: K01MH115794 (MJB).