Associations of the Lifestyle for Brain Health Index With Structural Brain Changes and Cognition
Results From the Maastricht Study

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Study Question
Are scores on the Lifestyle for Brain Health (LIBRA) index, a dementia risk score, associated with MRI markers and cognitive function in the general population?

What Is Known and What This Paper Adds
A proportion of all dementia cases are attributable to modifiable risk factors, and dementia risk scores may help clinicians identify individuals at higher risk of dementia. The LIBRA index is based on factors amenable to change and summarizes one’s potential for brain health improvement. This study provides Class II evidence that higher LIBRA scores are significantly associated with lower scores on some cognitive domains and a higher risk of cognitive impairment.

Methods
For these cross-sectional analyses, the investigators used data from 4,164 individuals (49.7% male; mean age, 59.2 ± 8.6 years) enrolled in the observational population-based Maastricht Study. The individual LIBRA factors were created based on clinical data from physical examination and/or self-reported questionnaires from the baseline measurement of The Maastricht Study and then dichotomized (presence of LIBRA factor yes/no) according to established cut-offs. Standardized volumes of the white matter, gray matter, CSF, and white matter hyperintensities (WMH) and evidence of cerebral small vessel disease were assessed on 3T MRI scans. The participants underwent testing of 3 cognitive functioning domains (memory, information processing speed, and executive function and attention) and scores ≤1.5 SDs were considered as indicative of impairment. The present study’s primary outcomes were the associations of LIBRA scores with MRI findings and cognitive impairment as analyzed with multiple regression analyses and structural equation modeling.

Results and Study Limitations
Participants with higher LIBRA scores had greater WMH volumes and lower scores for information processing speed and executive function and attention. Men with higher LIBRA scores had smaller gray matter volumes and lower memory scores. WMH and CSF volumes partially mediated the associations between LIBRA scores and cognitive scores. The present study’s limitations include an inability to establish causal relationships, possible selection biases due to missing MRI data, and not using the LIBRA factor related to cognitive activity.

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