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Editorial

Dietary patterns for cognitive health: bridging evidence across east and west

As populations age rapidly worldwide, identifying effective and scalable strategies to preserve cognitive health and prevent dementia has become an urgent public health priority. In this context, Jiang and colleagues provide a timely review of dietary patterns and cognitive health, with a particular emphasis on emerging evidence from the Eastern populations, including the Shanghai Cognitive Diet Pattern (SCDP) [1]. Their Review arrives timely, as growing evidence suggests that dietary patterns, rather than individual nutrients and food, may provide a more informative framework for understanding the complex relationship between diet and cognitive health in aging.

Over the past two decades, dietary pattern analyses have been developing rapidly. By capturing the synergistic interactions among foods and nutrients, dietary pattern analysis overcomes many of the limitations of traditional way of studying single dietary components. As Hu [2] proposed more than two decades ago, evaluating overall dietary patterns represents a more biologically meaningful and methodologically robust approach. Since then, dietary patterns such as the Mediterranean diet, the Dietary Approaches to Stop Hypertension (DASH) diet, and the Alternative Healthy Eating Index (AHEI) have been consistently associated with lower risks of various chronic diseases. Dietary interventions have emerged as a promising approach for promoting healthy aging, including healthy brain aging.

The biological plausibility underlying dietary pattern and brain health research is increasingly supported by mechanistic evidence. Healthy dietary patterns may influence brain aging through multiple pathways, such as improvements in vascular and metabolic health, reductions in chronic inflammation, and reducing oxidative damage, et al. Emerging evidence also suggests that diet may influence biomarkers of neurodegeneration (such as amyloid beta and tau pathways) and markers of biological aging (such as DNA methylation clocks).

The Mediterranean-DASH Intervention for Neurodegenerative Delay (MIND) diet was the first dietary pattern specifically designed to promote brain health and reduce the risk of dementia. Observational evidence has demonstrated that greater adherence to the MIND diet is associated with slower cognitive decline and a lower risk of dementia [3]. However, evidence from randomized controlled trials remains limited. The recent MIND Diet Trial did not show superiority of the MIND diet over an active control intervention, highlighting the challenges of translating observational associations into effective dietary interventions [4].

One of the major strengths of Jiang and colleagues' review is its focus on an important gap in the literature: the relative paucity of evidence from Eastern populations. This distinction is highly relevant because dietary habits differ substantially between Eastern and Western societies with respect to food choices, cooking practices, meal composition, and cultural eating behaviours. These differences give rise to distinct dietary patterns that may influence cognitive health through different biological pathways and challenge the direct extrapolation of findings derived predominantly from Western populations. By synthesizing the available evidence, the authors provide a valuable overview of current knowledge while highlighting the urgent need for high-quality prospective cohorts and well-designed intervention studies across diverse Asian populations.

Liu and colleagues examined predefined dietary patterns in the Singapore Diet and Healthy Ageing (DaHA) cohort and found that higher adherence to aMED, but not DASH or the Healthy Diet Indicator (HDI), was associated with lower odds of mild cognitive impairment (MCI) in cross-sectional analyses [5]. No significant associations were observed with incident mild cognitive impairment during longitudinal follow-up, highlighting the need for larger prospective studies with repeated dietary assessments to clarify the long-term cognitive benefits of healthy dietary patterns in Asian populations.

An important contribution of Jiang and colleagues is the development of the Shanghai Cognitive Diet Pattern (SCDP), a dietary pattern derived from the dietary habits of Chinese adults and specifically optimized for cognitive health. By systematically comparing the SCDP with established Western dietary patterns, particularly the MIND diet, the authors move beyond simply adapting existing dietary indices and take an important step towards developing culturally appropriate dietary recommendations for dementia prevention.

The authors also call for a transition from population-based dietary recommendations towards precision nutrition. This perspective aligns closely with the emerging paradigms of precision nutrition and precision prevention, which seek to tailor preventive strategies according to an individual's genetic background, health status, lifestyle, and environmental exposures. Diet is one of the most modifiable lifestyle factors throughout the life course and therefore offers considerable potential for personalized interventions aimed at preserving cognitive function. Future dementia prevention programmes may benefit from integrating individualized dietary strategies with other evidence-based lifestyle interventions, including physical activity, cognitive activities, social engagement, depression detection and management, and monitoring and managing vascular and metabolic risk factors.

At the same time, enthusiasm should be tempered by recognition of the current evidence base. Much of our understanding of dietary patterns and cognitive health continues to rely on observational studies. Establishing causality will require adequately powered, long-term

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randomized controlled trials evaluating culturally adapted dietary patterns as well as personalized nutritional interventions. Such studies should incorporate objective biomarkers to elucidate the mechanisms linking diet to brain health. Ultimately, realizing the promise of dietary interventions for dementia prevention will require integrating nutrition and dietetics, epidemiology, biology, modern precision medicine, and innovative trial methodology.

Declaration of the use of generative AI and AI-assisted technologies in scientific writing and in figures, images and artwork

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Declaration of competing interest

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