Dietary Pattern derived by Reduced Rank Regression is Associated with Reduced Cognitive Impairment Risk in Singaporean Older Adults

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Abstract : background: Multiple healthful dietary patterns have been linked with dementia, but limited studies have looked at the role of diet in cognitive health in Asians whose eating habits are very different from their counterparts in the west. This study aimed to derive a dietary pattern that is associated with the risk of cognitive impairment (CI) in the Singaporean population. Method: The analysis was based on 719 community older adults aged 60 and above. Dietary intake was measured using a validated semi-quantitative food-frequency questionnaire (FFQ). Reduced rank regression (RRR) was used to extract dietary pattern from 45 food groups, specifying sugar, dietary fiber, vitamin A, calcium, and the ratio of polyunsaturated fat to saturated fat intake (P:S ratio) as response variables. The RRR-derived dietary patterns were subsequently investigated using multivariate logistic regression models to look for associations with the risk of CI. Results: A dietary pattern characterized by greater intakes of green leafy vegetables, red-orange vegetables, wholegrains, tofu, nuts, and lower intakes of biscuits, pastries, local sweets, coffee, poultry with skin, sugar added to beverages, malt beverages, roti, butter, and fast food was associated with reduced risk of CI [multivariable-adjusted OR comparing extreme quintiles, 0.29 (95% CI: 0.11, 0.77); P-trend =0.03]. This pattern was positively correlated with P:S ratio, vitamin A, and dietary fiber and negatively correlated with sugar. Conclusion: A dietary pattern providing high P:S ratio, vitamin A and dietary fiber, and a low level of sugar may reduce the risk of cognitive impairment in old age. The findings have significance in guiding local Singaporeans to dementia prevention through food-based dietary approaches.
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