Four Dietary Patterns Observed Within an Elderly Asian Cohort

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Objectives: Dietary indices are largely established in American and European populations to measure diet quality based on the predominant food type and quantity consumed in those countries. However, applying these dietary indices to Asian or South Asian populations is complicated by diverse region-specific eating patterns, cultures and food availability. A challenge exists to identify a more relevant dietary index that agrees with distinct dietary patterns within the multi-ethnic Singapore context and what measures of dietary quality are appropriate for the unique food availability. This study aimed to characterise dietary patterns and quality in older Singapore individuals.

Methods: Daily energy, food and nutrient intakes were estimated from 2 sets of 3-day food records (IRB-2018–01-011)using an in-house and public databases (Singapore Food and Nutrient Composition database, and Phenol-Explorer). Diet composition was categorised into 33 food groups and hierarchical clustering (Ward's method) was performed to characterise habitual dietary patterns based on energy intake. Adherence to Healthy Eating Index (HEI) and MEDI-LITE score were assessed. Differences in energy, food groups and nutrients were analysed using Kruskal-Wallis test and permutational multivariate analysis of variance.

Results: We observed four distinct dietary patterns- i) noodle/rice-based diet, ii) highly refined diet, iii) energy-dense diet and iv) high-fibre diet consumed by 21%, 27%, 36% and 16% of the cohort, respectively (66 $\pm$ 5 years old, 1640–1874 kcal/day). Two patterns comprised high intakes of refined foods (i.e., white rice, bread, noodles), differed substantially from Western or Mediterranean diets and were characterised by higher visceral trunk fat. In contrast, the high-fibre pattern had favourable cardiometabolic risk markers and reduced body fat. These dietary patterns did not fit with HEI and MEDI-LITE score, considering the preference for rice, noodles and spices in Asian diets, and reduced preference for cereals, olive oil and red wine (emphasised in MEDI-LITE score).

Conclusions: Studying populations exposed to regionally diverse food components challenge the relevance of applying previously established diet indices.