Validity of Emerging Plant-Based Dietary Patterns and Their Association With Cardiovascular Disease – Findings From the Canadian Community Health Survey-Nutrition

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Objectives: Despite the growing interest in plant-based dietary patterns, no previous studies have evaluated the performance of plant-based dietary indices in a general population. The main objectives of this research were to evaluate the construct validity of plant-based dietary indices and to explore associations between adherence to these indices and risk of cardiovascular disease (CVD).

Methods: Repeated 24-hour dietary recalls were obtained from the nationally representative sample of Canadians ($\geq$18 y of age) in the Canadian Community Health Survey-Nutrition, cycle 2004 linked to vital statistics (n = 12,323) and cycle 2015 (n = 14,026). Scores on the revised Plant-based Dietary Index (PDI), Eat-Lancet Reference Diet (ERD) and latest version of Dietary Guidelines for Americans Adherence Index (DGAI 2020) were computed on the basis of population distribution and government-defined thresholds. Associations between diet quality and lifestyle characteristics were tested using weighted multivariate analyses, whereas associations between the dietary index scores and CVD outcomes were examined using weighted multivariable-adjusted Cox proportional-hazards models.

Results: Estimated mean revised PDI, ERD and DGAI scores were 37 ± 0.3 out of 90, 9 ± 0.03 out of 14, and 9 ± 0.04 out of 19, respectively. Construct validity was confirmed for revised PDI and DGAI 2020 indices as participants in the highest (healthiest) quartile, compared to those in the lowest (least healthy), were more likely to be female, older, non-smoker and post-secondary educated (p-trend < 0.0001). No significant associations were found between the index scores and CVD risk, although higher adherence to plant-based dietary patterns was associated with higher intakes of beneficial nutrients and lower risk of obesity.

Conclusions: PDI and DGAI 2020 provided valid measures of plant-based eating among Canadians, while validity of ERD was not confirmed. Further research is needed on developing country-specific plant-based dietary indices with better discrimination power to clarify the effect of plant-based eating on CVD risk.