Proceedings of the Nutrition Society (2024), **83 (OCE2)**, E220 doi:10.1017/S0029665124004440

Winter Conference 2023, 5-6 December 2023, Diet and lifestyle strategies for prevention and management of multimorbidity

Diversity of plant-based food consumption: A systematic scoping review on measurement tools and associated health outcomes

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Plant-based foods encompass all food products derived from plant sources, such as fruits, vegetables, grains, legumes, herbs and spices, and nuts and seeds, plant-based fats and oils (e.g. olive oil) and plant-based beverages (e.g. tea and coffee). Consumption of diverse plant-based foods is a dietary pattern that has gained significant attention amongst the public, due to its perceived benefits for maintenance of health[(1)]. Plant-based foods provide a rich source of macronutrients, micronutrients and non-nutrient bio-actives that are often reported to improve health outcomes. Despite this, there are no standard definitions of plant-based diversity, or consensus on methods of measurement in nutrition research studies. The objective of the current research was to conduct a scoping review of the literature to identify studies investigating plant-based food diversity and it's impact on human health outcomes, and to subsequently characterize a) definitions of plant-based diversity used, b) methods used to assess plant-based food intake, c) methods used to assess plant- based food diversity, and d) health outcomes assessed and key findings.

Eligible studies were those investigating the relationship or impact of plant-based food diversity on any health related or lifestyle outcome, by any study design, in high income countries only. Studies were identified by systematic searches of two electronic databases and manual searches of reference lists. No restrictions were applied for language or year of publication. The review was performed in line with the guidelines for Preferred Reporting Items for Systematic Reviews and Meta-Analyses Extension for Scoping Reviews [(2)].

Forty-four studies were eligible for inclusion in this review. The majority of studies were observational in design (39/44; 87%) and included fruits and vegetables only in their definitions of plant-based food diversity (32/44, 72%). Methods of measurement of both plant-based food intake and diversity varied greatly among studies, with only four studies (9%) utilizing a tool validated for assessment of plant-based food diversity in their population of interest. Health outcomes included dietary intake and behaviour, socioeconomic factors, cardiometabolic risk factors, and cancer risk,. No randomized controlled trials investigating the impact of plant food diversity on health outcomes were identified.

There is a need for a consensus definition of "diverse plant-based foods" incorporating all relevant foods from plant sources (e.g. legumes, nuts, herbs). Robust measurement tools and reporting guidelines for the assessment of plant-based food diversity in nutrition research studies will help to standardize research in this area. Within countries, an assessment of standard levels of intake of plant-based foods would be beneficial, in identifying whether diverse plant-based eating may be a target for dietary improvement. Observational studies report associations between plant-based food diversity and health outcomes, that warrant investigation in future randomized controlled trials.

References

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