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The Effects of Cardiometabolic Risk Factors on Dietary Behavior

Dear Editor:

We read with interest the article “Healthy Food Prescription Programs and Their Impact on Dietary Behavior and Cardiometabolic Risk Factors: A Systematic Review and Meta-Analysis” by Bhat et al. (1), published in *Advances in Nutrition*. The authors conducted a systematic review of healthy food prescription programs and evaluated their impact on dietary behavior and cardiometabolic parameters by meta-analysis. They performed a systematic search of interventional studies investigating the effect of healthy food prescription on diet quality and/or cardiometabolic risk factors, including BMI, systolic and diastolic blood pressure (DBP), glycated hemoglobin (HbA1c), and blood lipids. They reported that healthy food prescription programs might be beneficial in increasing consumption of fruit and vegetables and modestly reduce BMI and HbA1c. They mentioned that the results of the study supported the need for well-designed, large, randomized controlled trials in various settings to further establish the efficacy of healthy food prescription programs on diet quality and cardiometabolic health.

Due to wide participation with 27,000 individuals from 52 countries in the INTERHEART (2) study, 9 risk factors, including abnormal lipids, smoking, hypertension, diabetes,

abdominal obesity, psychosocial stress, lack of consumption of fruit and vegetables, lack of moderate alcohol consumption, and lack of physical activity, were identified, accounting for 90% of the population-attributable risk of myocardial infarction in men and 94% in women (3). Although the authors correlated 4 main risk factors with dietary behavior with a limited number, some of the risk factors not mentioned, such as smoking and alcohol consumption, which were related to irregular food intake and higher cravings for high fat and fast-food fats (4–6), were not evaluated. These risk factors should be considered in the assessment of cardiometabolic risk patterns. Therefore, we believe that knowledge of these aspects in relation to the patient population would be valuable and beneficial to the readers.

Ali Kağan Coskun
Bilgehan Savas Oz

From the Department of General Surgery, Gulhane School of Medicine, University of Health Sciences, Ankara, Turkey (AKC, e-mail: kagancoskun@gmail.com); and Department of Cardiovascular Surgery, Gulhane School of Medicine, University of Health Sciences, Ankara, Turkey.

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Reply to A Coskun and B Oz

Dear Editor:

We thank Coskun and Oz for their letter on additional lifestyle risk factors for cardiovascular disease (CVD), such as physical activity, stress, smoking, and alcohol, that could

be considered in evaluating effects of produce prescription interventions. We note that suboptimal diet is an established major risk factor for CVD, by itself accounting for up to 45% of attributable risk (1), with downstream influences on physiologic risk factors that are both established (e.g., blood pressure, adiposity, glucose, blood cholesterol) and emerging (e.g., inflammation, endothelial function, gut health). Thus, any intervention that successfully contributes to increased intake of healthy foods will meaningfully impact CVD risk, as shown in the PREDIMED (Prevention with Mediterranean Diet) trial (2). This highlights the promise of Food is Medicine interventions like healthy food prescriptions, which integrate food and nutrition into health care systems.

In our systematic review of healthy food prescriptions, only 1 study included stress-reduction techniques and physical activity coaching (3), and none included guidance on smoking or alcohol. Yet, improving food and nutrition insecurity through the provision and subsidizing of healthy foods could also plausibly reduce stress, improve quality of life, and thus indirectly improve other lifestyle behaviors such as around exercise and alcohol.

In response to the letter by Coskun and Oz, we have reviewed all studies in our systematic review to assess how many reported effects on smoking, alcohol, exercise, or psychosocial stress. Of the 13 studies, only 2 reported on exercise: the multicomponent intervention found a significant increase in time spent exercising from 83 min to 129 min/wk (3), whereas another study found an increase in the number of days of moderate activity from 1.5 d to 3 d/wk (4). Only 1 study reported on depressive symptoms, finding an improvement of 2 points on the Patient Health Questionnaire-9 (3). None of the studies reported on changes in smoking or alcohol.

In sum, the significant improvements we identified in fruit and vegetable intake, BMI, and glycated hemoglobin (HbA1c) provide evidence for important clinical benefits of healthy food prescription programs. The additional findings on exercise and depression should be considered hypothesis-generating and require further confirmation. Given the highly interrelated nature of nutrition, food security, and other cardiovascular and metabolic risk factors, we agree with Coskun and Oz that future healthy food prescription studies could aim to assess the impact of such interventions on additional lifestyle habits, cardiometabolic risk factors, and other patient-centered outcomes.

Saiuj Bhat
Daisy H Coyle
Kathy Trieu
Bruce Neal
Dariush Mozaffarian
Matti Marklund
Jason HY Wu

From the School of Medicine, the University of Western Australia, Crawley, Australia (SB); The George Institute for Global Health, University of New South Wales, Sydney, Australia (DHC, KT, BN, MM); JHYW, e-mail: jwu1@georgeinstitute.org.au; School of Public Health, Imperial College London,

London, United Kingdom (BN); Friedman School of Nutrition Science and Policy, Tufts University, Boston, MA, USA (DM); and Bloomberg School of Public Health, Johns Hopkins University, Baltimore, MD, USA (MM).

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Letter to the Editor on the “Effects of Microbiota-driven Therapy on Circulating Indoxyl Sulfate and *p*-Cresyl Sulfate in Patients with Chronic Kidney Disease: A Systematic Review and Meta-Analysis of Randomized Controlled Trials”

Dear Editor:

We read with much interest the article by Chen et al., entitled “Effects of microbiota-driven therapy on circulating indoxyl sulfate and *p*-cresyl sulfate in patients with chronic kidney disease: a systematic review and meta-analysis of randomized controlled trials” (1). Since the nephrological community increasingly recognizes the deleterious effects of microbiota-derived, protein-bound uremic toxins in the pathobiology of chronic kidney disease (CKD), the authors’ efforts to meta-analyze the effects of “microbiota-driven therapy” are highly valuable.

Unfortunately, we have found several limitations and some mistakes that, in our opinion, significantly limit potential confidence in the results of the systematic review, and may therefore change the conclusion. Below, we submit our main concerns about the article.