



## Editorial

## The Dietary Guidelines for Americans—is the evidence bar too low or too high?

Dariush Mozaffarian<sup>1,2,\*</sup>

<sup>1</sup> Food is Medicine Institute, Friedman School of Nutrition Science & Policy, Tufts University, Boston, MA, United States; <sup>2</sup> Tufts University School of Medicine, Tufts University, Boston, MA, United States

Every 5 y, the federal government updates the Dietary Guidelines for Americans (DGAs), aiming to provide advice on what to eat and drink to meet nutrient needs, promote health, and prevent disease. A critical step is the convening and deliberation of the Dietary Guidelines Advisory Committee (DGAC), a government-selected committee of experts who volunteer their time, over nearly 2 y, to appraise and make recommendations from new systematic evidence reviews (SRs) of timely questions around nutrition. In the current 2025–2030 cycle, for example, the DGAC reviewed 29 scientific questions around nutrition, such as the relationship of dietary patterns with varying amounts of ultraprocessed foods (UPFs) to growth, body composition, and risk of obesity [1]. As in previous cycles, these and other questions are addressed using the USDA Nutrition Evidence Library (NEL) and SRs. SRs are produced by the USDA's Nutrition Evidence Systematic Review (NESR) staff, comprising a number of SR, methodologic, and content experts.

In recent cycles, the process underlying the DGAs has been questioned, including whether it's valid, free from bias, and sufficiently updated to current evidence. For example, in 2016, Congress directed the National Academies to review the DGA process and make recommendations for improvement [2]. This included a review of whether the NEL reviews, other SRs, and data analyses are conducted according to rigorous and objective standards.

In this issue of the *American Journal of Clinical Nutrition*, Bodnaruc et al. [3] report a pilot study evaluating reliability and reproducibility of a sample of NESR SRs from the 2020–2025 DGAs. They aimed to assess whether the SRs 1) reported a transparent, complete, and accurate account of processes to ensure reliability and reproducibility and 2) might have different final conclusions when independently reproduced.

They focused on the 8 SRs conducted for the DGAC subcommittee on dietary patterns. Methodologic quality and reporting transparency were assessed using checklists, such as the Assessment of Multiple Systematic Reviews 2 (AMSTAR2), the Preferred Reporting Items for Systematic reviews and Meta-Analyses (PRISMA 2020), and PRISMA-S. To consider reproducibility, the authors selected 1 SR a priori (on dietary patterns and neurocognitive health). When possible, the authors performed meta-analyses from this single SR—a process not conducted by NESR—to compare quantitative pooled findings with the original NESR narrative syntheses. Finally, the authors looked for spin bias (i.e., misleading reporting, interpretation, or extrapolation of findings) and whether observed differences during reproducibility might change the original NESR conclusions.

In their conclusions, Bodnaruc et al. [3] report that the methodologic quality of all 8 evaluated SRs was critically low. However, this assessment included negative grading for lack of: quantitative meta-analysis (which is not always done in NESR SRs), heterogeneity assessment (which generally requires a meta-analysis), and protocol registration (which NESR replaces with public posting on the USDA website). The SRs largely met the other 12 methodologic quality criteria, with 8 criteria met by all 8 SRs, 2 met by 7 SRs, and 2 met by 5 SRs.

When reporting transparency was evaluated, most of the negative grading by Bodnaruc et al. related to similar issues around absence of quantitative meta-analysis, heterogeneity assessment, or registration. However, a few other gaps were identified. All 8 SRs lacked a described rationale in the context of existing knowledge; a general interpretation of results in context of other evidence; a discussion of limitations of used review processes; a presentation of all investigations of possible causes of heterogeneity; and a reporting of publicly

DOI of original article: <https://doi.org/10.1016/j.ajcnut.2024.10.013>.

Abbreviations: DGA, Dietary Guidelines for Americans; DGAC, Dietary Guidelines Advisory Committee; NEL, Nutrition Evidence Library; NESR, Nutrition Evidence Systematic Review; SR, Systematic evidence reviews; UPF, ultraprocessed foods.

\* Corresponding author. E-mail address: [dariush.mozaffarian@tufts.edu](mailto:dariush.mozaffarian@tufts.edu).

<https://doi.org/10.1016/j.ajcnut.2024.11.013>

Received 7 November 2024; Received in revised form 13 November 2024; Accepted 13 November 2024; Available online xxxx

0002-9165/© 2024 American Society for Nutrition. Published by Elsevier Inc. All rights are reserved, including those for text and data mining, AI training, and similar technologies.

available and access locations of data collection forms, extracted data, code, and other materials.

Reviewing search transparency, 10 of 16 criteria were met by all SRs. Of the other 6 criteria, several were minor or not relevant (e.g., reporting whether previous SR search strategies were reused), although 2 could modestly influence validity and reproducibility: whether search filters were used; and reporting of total records identified from separate databases.

Combining these assessments, the authors concluded there were “critical weaknesses in the conduct of the SRs” and “suboptimal” reporting overall and of the search strategy. Yet, these conclusions appear overstated. Although the absence of meta-analysis (and accompanying formal assessment of heterogeneity) are limitations, not every SR lends itself to quantitative pooling. The other findings suggest reasonable methodologic quality of the SRs overall. Otherwise, a few important gaps were identified in reporting and search transparency, as described above.

Although the authors hoped to investigate reproducibility for one of the SRs, they unfortunately did not perform any replication of the systematic review process. For instance, they did not reproduce the search or eligibility assessments to determine whether all relevant articles were included, nor whether all ineligible articles had been excluded. They likewise did not replicate data extractions. Rather, using the NESR-identified studies and data, the authors performed 2 new small meta-analyses (including 3 cohorts each), from which they concluded that quantitative findings were consistent with NESR narrative conclusions. This limited effort does not tell us very much about the true reproducibility of the NESR SRs. Lastly, the authors evaluated and found little evidence of spin bias.

Having conducted and published ~30 systematic reviews myself, I know well their promise, pitfalls, and perils. Although checklists like AMSTAR2 and PRISMA facilitate assessment of presence or absence of certain methodologic and reporting features, they have little relevance to the actual validity or generalizability of SRs. The latter are profoundly dependent on factors that cannot be assessed by checklists and were not assessed by Bodnaruc et al. For example, does the specific research question target the appropriate priority gap in the science? Are study inclusion/exclusion criteria appropriately designed to answer this question? Do search terms accurately capture these criteria? Were searches and inclusion/exclusion decisions correctly implemented? Was data extraction accurate, complete, and also objective when multiple results were reported? A review of these and other fundamental issues in systematic reviews cannot be performed using checklists. It requires a high level of topical knowledge, expertise, experience, and commitment to objectivity and rigor.

The critical issue is whether, considering these issues, the DGAC SR process achieves its goals. For the 2025–2030 DGAC, I served as a peer reviewer for the SR on UPFs. My role and (unattributed) reviewer comments will be publicly released with the DGAC report. I felt that the SR’s question, design, and planned methods were appropriate, but that its implementation and conclusions were weakened by important deviations from these standards. For example, contradicting its stated eligibility criteria, the SR included numerous studies that did not appropriately or adequately define or assess UPF. Following inclusion of such heterogeneous studies, the SR concluded that the scientific evidence on UPF was limited due to many studies having serious concerns around exposure misclassification as well as evaluating dietary patterns not directly varying in amounts of UPF. This demonstrated a circular and dismaying reasoning: the SR included studies it should not have that had heterogeneous and poorly characterized

assessments of UPF, and then concluded that heterogeneous and poorly characterized assessments of UPF limited the strength of the evidence.

Consideration of UPF is complex, and it is probable this SR is not fully representative of other NESR efforts. But the report by Bodnaruc et al. [3] and my own peer-review highlight several issues. First, given the national onslaught of diet-related diseases, it is imperative that ample dedicated resources, staffing, and time be afforded to the federal agencies tasked with updating the DGAs. Second, the DGAC evidence reviews would benefit from greater efforts to perform quantitative meta-analysis. Third, the larger field of nutrition is witnessing a wild west of nutritional SRs. Compared with ~150 nutritional SRs published in 2010 (the year we reported our first SR), the field now sees ~2000 annually. Do the peer-reviewers of all these articles have requisite knowledge and time to adequately appraise them? Do the corresponding journals have sufficient editorial expertise and publishing standards? Or are we flooding the literature with an escalating number of articles with impressive quantities, high precision, and dubious validity?

Most importantly, the DGA and SR requirements make clear that guiding Americans toward a healthier diet is an unfair fight from the start. The food industry can do almost anything it wishes to our food, combining diverse ingredients, additives, and processing methods with virtually no oversight or required evidence for long-term safety [4]. In contrast, the DGAs and other federal agencies can only make recommendations to avoid certain foods or limit certain manufacturing methods when there is extensive, robust, and consistent evidence for harm. In this severely imbalanced playing field, industry wins again and again. With far more Americans ill from diet-induced diseases than becoming healthy [5], it is time to flip this script. Based on the cautionary principle and the ethical obligation to do no harm, food ingredients, additives, and processing methods must only be used when they meet SR-equivalent standards *proving* their long-term safety. Moreover, the DGAs should be able to recommend avoidance of any foods not meeting such standards of evidence.

### Conflict of interest

DM serves on a scientific advisory board for Beren Therapeutics, Brightseed, Calibrate, Elysium Health, Filtricine, HumanCo, Instacart Health, January, Season Health, Validation Institute, and WndrHLTH; reports equity in Calibrate and HumanCo; and reports chapter royalties from UpToDate.

### Funding

This study was supported by the National Heart, Lung, and Blood Institute, National Institutes of Health (R01-HL135920).

### References

- [1] Dietary Guidelines for Americans [Internet], (2020). Available from: <https://www.dietaryguidelines.gov/scientific-questions> (accessed November 1, 2024).
- [2] National Academies of Sciences, Engineering, and Medicine, *Redesigning the Process for Establishing the Dietary Guidelines for Americans*, National Academies Press (2017).
- [3] Bodnaruc et al. 2024. In this issue.
- [4] J.L. Pomeranz, E.M. Broad Leib, D. Mozaffarian, Regulation of added substances in the food supply by the Food and Drug Administration Human Foods Program, *Am. J. Public Health*. 114 (10) (2024) 1061–1070, <https://doi.org/10.2105/AJPH.2024.307755>.
- [5] M. O’Hearn, B.N. Lauren, J.B. Wong, D.D. Kim, D. Mozaffarian, Trends and disparities in cardiometabolic health among U.S. adults, 1999–2018, *J. Am. Coll. Cardiol.* 80 (2) (2022) 138–151, <https://doi.org/10.1016/j.jacc.2022.04.046>.