Letter to the Editor on "Systematic Review of Diets Enriched in Oleic Acid and Obesity"

Dear Editor:

We read, with great diligence, the study done by Tutunchi et al. (1) entitled, "The Effects of Diets Enriched in Monounsaturated Oleic Acid on the Management and Prevention of Obesity: A Systematic Review of Human Intervention Studies." Since we have worked on a similar meta-analysis paper concerning the effects of canola oil intake on anthropometric measurements (2), we are aware of the challenges in systematic reviews regarding the effects of dietary oil intake on body-composition indices. Despite the interesting subject, the current study lacks some important elements of a full systematic review.

Inadequate search strategy and, as a result, ignoring a large number of eligible studies are on top of them. The authors stated that all of the human clinical studies evaluating the effects of diets enriched in oleic acid on the obesity measurements were included in this study. However, our initial search revealed that a large number of studies examining the effects of olive oil on body composition indices were ignored (3–19). After a careful review, we noticed that the first keywords set was searched only in the title ("oleic acid," "olive oil," "MUFA," "monounsaturated fatty acid," and "Mediterranean diet"; the authors' methods, Eligibility criteria, page 2), whereas the second keywords set (obesity-related terms) was searched in the title/abstract. We would like to ask the authors about the rationale behind this uncommon approach. This act narrows the search strategy, capturing a limited number of articles (821 papers) in their initial search. This methodological fault has been addressed in other letters to the editor as well (20, 21). Additionally, we observe that the anthropometric measurements might be presented as secondary outcomes; thus, they are not always shown in the title/abstract. In this regard, we would suggest that the authors use the keywords related to "clinical trials" in their search strategy as an independent set of keywords from the first one to find the greatest number of relevant papers. Moreover, the authors did not hand-search the references of the included studies in their systematic review, which is a practical method to cover the limitations that can arise from a defective search strategy (22).

Second, there is evidence of bias in including the potential studies. We believe that the used keywords are not satisfactory enough to capture all of the potential literature meeting the study inclusion criteria. The authors have focused on the most popular vegetable oils high in oleic acid, including olive and some other dietary oils, while some other less popular vegetable oils high in oleic acid have been ignored. For instance, the authors overlooked studies that investigated the effects of hazelnut-enriched diets; however, research concerning the fatty acid composition of plant-based oils has indicated that the oleic acid content of hazelnut oil is even greater than in olive oil (23). Thus, at least 9 studies have been missed until 2016 according to the results of a meta-analysis of hazelnut consumption and lipid profile and body weight (24).

Surprisingly, the authors missed presenting a key element of a successful systematic review. Quality assessment of the included studies is considered to be a crucial component of a full systematic review (25, 26). Systematic reviews are not only used to identify and critically evaluate the results of the included studies but also to provide the effectiveness of interventions considering the quality of included evidence (27). Numerous tools have been presented for the quality assessment of clinical trials, including Cochrane Collaboration tools (28).

Although systematic reviews are considered to be reliable tools to summarize evidence, researchers should take great caution while conducting a systematic review. In conclusion, the current review suffers from some methodological issues, including an incomplete search strategy, missing a large number of publications, and ignoring an appraisal of included studies. In this regard, we would like to ask the authors to address our concerns.

Hamidreza Raeisi-Dehkordi
Mostafa Dianatinasab
Mojgan Amiri

From the Department of Nutrition, School of Public Health, Shahid Sadoughi University of Medical Sciences, Yazd, Iran (HR-D); Department of Complex Genetics and Epidemiology, School of Nutrition and Translational Research in Metabolism, Maastricht University, Maastricht, The Netherlands (MD); and Department of Epidemiology, Erasmus MC, University Medical Center Rotterdam, PO Box 2040, 3000, CA, Rotterdam, The Netherlands (MA, e-mail: mojgan.amiri@erasmusmc.nl).

Author disclosures: The authors report no conflicts of interest.

References

1. Tutunchi H, Ostadrahimi A, Saghafi-Asl M. The effects of diets enriched in monounsaturated oleic acid on the management and prevention of obesity: a systematic review of human intervention studies. Adv Nutr 2020;11:864.
2. Raeisi-Dehkordi H, Amiri M, Humphries KH, Salehi-Abargouei A. The effect of canola oil on body weight and composition: a systematic review and meta-analysis of randomized controlled clinical trials. Adv Nutr 2019;10(3):419–32.
3. Kris-Etherton PM, Derr J, Mitchell DC, Mustad VA, Russell ME, McDonnell ET, Salabsky D, Pearson TA. The role of fatty acid saturation on plasma lipids, lipoproteins, and apolipoproteins: I. Effects of whole food diets high in cocoa butter, olive oil, soybean oil, dairy butter,

and milk chocolate on the plasma lipids of young men. Metabolism 1993;42(1):121–9.
4. Henna M, Antti A, Niina S. Effect of a-linolenic acid-rich camelina sativa oil on serum fatty acid composition and serum lipids in hypercholesterolemic subjects. Metabolism 2002;10:1253–60.
5. Aguilera C, Mesa M, Ramirez-Tortosa M, Nestares M, Ros E, Gil A. Sunflower oil does not protect against LDL oxidation as virgin olive oil does in patients with peripheral vascular disease. Clin Nutr 2004;23(4):673–81.
6. Choudhury N, Tan L, Truswell AS. Comparison of palmolein and olive oil: effects on plasma lipids and vitamin E in young adults. Am J Clin Nutr 1995;61(5):1043–51.
7. Namayandeh SM, Kaseb F, Lesan S. Olive and sesame oil effect on lipid profile in hypercholesterolemic patients, which better? Int J Prev Med 2013;4(9):1059.
8. Rozati M, Barnett J, Wu D, Handelman G, Saltzman E, Wilson T, Li L, Wang J, Marcos A, Ordovás JM. Cardio-metabolic and immunological impacts of extra virgin olive oil consumption in overweight and obese older adults: a randomized controlled trial. Nutr Metab 2015;12(1):28.
9. Kris-Etherton PM, Pearson TA, Wan Y, Hargrove RL, Moriarty K, Fishell V, Etherton TD. High–monounsaturated fatty acid diets lower both plasma cholesterol and triacylglycerol concentrations. Am J Clin Nutr 1999;70(6):1009–15.
10. Tholstrup T, Hjerpsted J, Raff M. Palm olein increases plasma cholesterol moderately compared with olive oil in healthy individuals. Am J Clin Nutr 2011;94(6):1426–32.
11. Baxheinrich A, Stratmann B, Lee-Barkey YH, Tschoepe D, Wahrburg U. Effects of a rapeseed oil-enriched hypoenergetic diet with a high content of α-linolenic acid on body weight and cardiovascular risk profile in patients with the metabolic syndrome. Br J Nutr 2012;108(4):682–91.
12. Cicero AF, D'Addato S, Fiorito A, Poli A, Gaddi AV. Plasma lipid effects of corn oil and extra-virgin olive oil in hypercholesterolaemic subjects: a randomised, controlled trial. Med J Nutr Metab 2009;1(3):187–92.
13. Derouiche A, Cherki M, Drissi A, Bamou Y, El Messal M, Idrissi-Oudghiri A, Lecerf J, Adlouni A. Nutritional intervention study with argan oil in man: effects on lipids and apolipoproteins. Ann Nutr Metab 2005;49(3):196–201.
14. Kontogianni MD, Vlassopoulos A, Gatzieva A, Farmaki A-E, Katsiougiannis S, Panagiotakos DB, Kalogeropoulos N, Skopouli FN. Flaxseed oil does not affect inflammatory markers and lipid profile compared to olive oil, in young, healthy, normal weight adults. Metabolism 2013;62(5):686–93.
15. Kruse M, von Loeffelholz C, Hoffmann D, Pohlmann A, Seltmann AC, Osterhoff M, Hornemann S, Pivovarova O, Rohn S, Jahreis G. Dietary rapeseed/canola-oil supplementation reduces serum lipids and liver enzymes and alters postprandial inflammatory responses in adipose tissue compared to olive-oil supplementation in obese men. Mol Nutr Food Res 2015;59(3):507–19.
16. Lucci P, Borrero M, Ruiz A, Pacetti D, Frega N, Diez O, Ojeda M, Gagliardi R, Parra L, Angel M. Palm oil and cardiovascular disease: a randomized trial of the effects of hybrid palm oil supplementation on human plasma lipid patterns. Food Funct 2016;7(1):347–54.
17. Nelson T, Hokanson J, Hickey M. Omega-3 fatty acids and lipoprotein associated phospholipase A 2 in healthy older adult males and females. Eur J Nutr 2011;50(3):185–93.
18. Nigam P, Bhatt S, Misra A, Chadha DS, Vaidya M, Dasgupta J, Pasha QM. Effect of a 6-month intervention with cooking oils containing a high concentration of monounsaturated fatty acids (olive and canola oils) compared with control oil in male Asian Indians with nonalcoholic fatty liver disease. Diabetes Technol Ther 2014;16(4):255–61.
19. Nydahl M, Gustafsson I, Ohrvall M, Vessby B. Similar effects of rapeseed oil (canola oil) and olive oil in a lipid-lowering diet for patients with hyperlipoproteinemia. J Am Coll Nutr 1995;14(6):643–51.
20. Raeisi-Dehkordi H, Muka T. Meta-analysis of l-carnitine supplementation on lipid profile and glycemic control: Inadequate search strategy and other methodological issues. Clin Nutr 2020;39:1975.
21. Amiri M, Raeisi-Dehkordi H, Salehi-Abargouei A, Comment on "Effects of flaxseed interventions on circulating inflammatory biomarkers: a systematic review and meta-analysis of randomized controlled trials. ." Adv Nutr 2020;11(5):1399–400.
22. Muka T, Glisic M, Milic J, Verhoog S, Bohlius J, Bramer W, Chowdhury R, Franco OH. A 24-step guide on how to design, conduct, and successfully publish a systematic review and meta-analysis in medical research. Eur J Epidemiol 2020;35(1):49–60.
23. Benitez-Sánchez PL, León-Camacho M, Aparicio R. A comprehensive study of hazelnut oil composition with comparisons to other vegetable oils, particularly olive oil. Eur Food Res Technol 2003;218(1): 13–9.
24. Perna S, Giacosa A, Bonitta G, Bologna C, Isu A, Guido D, Rondanelli M. Effects of hazelnut consumption on blood lipids and body weight: a systematic review and Bayesian meta-analysis. Nutrients 2016;8(12):747.
25. Jüni P, Altman DG, Egger M. Assessing the quality of controlled clinical trials. BMJ 2001;323(7303):42–6.
26. Atkins D, Best D, Briss P. A, Eccles M, Falck-Ytter Y, Flottorp S, Guyatt G. H, Harbour R. T, Haugh M.C, Henry D et al. Grading quality of evidence and strength of recommendations. BMJ 2004;328(7454): 1490.
27. Egger M, Juni P, Bartlett C, Holenstein F, Sterne J. How important are comprehensive literature searches and the assessment of trial quality in systematic reviews? Empirical study. Health Technol Assess 2003;7(1):1–76.
28. Higgins JP, Thomas J, Chandler J, Cumpston M, Li T, Page MJ, Welch VA. Cochrane handbook for systematic reviews of interventions. Chichester (UK): John Wiley & Sons; 2019.