Reviewer’s report

Title: Associations between dietary patterns and blood pressure in a sample of Australian adults

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Reviewer: Micah Leshem

Reviewer's report:

This is a commendable and useful paper which should be published. It speaks to the new and important trend of considering whole diets as complex nutrient interactions in terms of health impact rather than isolated nutrients.

I have a couple of questions, and some minor ones in the attached document but would urge the authors to consider these issues to improve their paper.

The MS is aimed at an international journal and readership, and while Australian diet and the research findings are relevant globally, there is much parochial in the MS that an international audience may find difficulty with - a case in point is "cordial" which in many places means alcoholic, among other meanings. Similarly "casseroles", "sauces and dressings", "prepared main dishes" (are these commercially prepared - industrialised?) - some disambiguation would be helpful. Do vegimites cause itching?
Just to give perspective, "30 standard (10g alcohol) alcoholic drinks weekly" would be considered a sin beyond the pale in much of the world and an alcoholic in most of it, so author's specific exclusion would be as obvious as excluding any other severe pathology to a non-Western-non-beer-swilling population.

A major problem is the sample being some 40% hypertensives (table 1). This is a serious limitation, and authors seem to gloss over it, which is not proper, even if the statistical adjustment suggests it does not influence their chosen variables. Nevertheless, one would want to be convinced that the distribution of hypertensives in the 3 groups does not differ significantly, one would want to see the contribution of AHT as a confound or covariate; for instance, is the interaction of AHT, tertiles, and dietary pattern significant? (ditto, if less important to discuss, for sex proportions?). Authors seem to miss that this is an important issue in their paper as they define its primary aim in its first word ("Hypertension"). The data beg the question of the relationship between AHT and the diet - consideration of cause-and-effect of the diet patterns on the one hand and AHT distribution on the other would seem to be highly warranted. Surely seeking changes in BP in a sample of which ~40% are on AHT would be expected to be fairly self-defeating? Would the paper stand with hypertensives excluded, or, perhaps benefit from considering them as separate groups?
Again, in view of the prominence of this confound, the statistical panacea are insufficient to put the this reader at ease.

One issue I hope the authors will consider in the interests of objectivity, transparency, and their primary aims in carrying out this study, as they state, it is important to consider whole diets in terms of health impact rather than isolated nutrients. So while I understand why authors nevertheless emphasise sodium and potassium throughout the MS, I note that it somewhat undermines their stated intent. Thus, why are these 2 electrolytes the only electrolytes or nutrients selected for analysis and submitted to the reader as subliminally explanations for the specific effects of diet 2? Further, does this imply that no
other electrolytes, macronutrients, food or other dietary components correlated with the diet and with BP? Or do authors concentrate on these 2 because they are the ones implicated in so many single-nutrient studies of CVD etc? To this reader this is a contradiction of authors' stated aim of a broader dietary analysis. Clearly Na+ and K+ should remain in the analyses, but surely we should be informed if they were the only correlates of BP in the diets? And if not, then for the sake of author's hypothesis, if not for transparency and scientific objectivity, do pls inform the reader.

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