Title: High prevalence of vitamin D insufficiency and its association with cardio-metabolic risk factors among Malay adults in Kuala Lumpur, Malaysia

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Reviewer: Jeffery Anderson

Reviewer's report:

This report assesses Vit D status in 380 Malay volunteers from Kuala Lumpur. A high prevalence of Vit D insufficiency was noted (68%), especially among women (87%). Vit D insufficiency was associated with obesity and metabolic syndrome, CV coronary risk factors. The article is of interest, but a few suggestions/questions follow:

1) Abstract/results: Please present the %Vit D insufficient prominently (also by sex), but could shorten some other details

2) Intro: OK, but better highlight unique factors in Malaysia, e.g., lots of sun but protective clothing in women and indoor activity for men in urban areas and darker skin.

3) Methods: Can you define more than one level of inadequate 25(OH)D, i.e., sufficient, insufficient, deficient, and possibly severely deficient, and indicate that basis for cutoff (e.g., cutpoint where PTH rises)? Also, would be helpful for US audience to also provide conversion factor from nmol/L to ng/mL in Methods. Note limitations to power of study, given only intermediate numbers of subjects, and any concerns regarding selection biases.

4) Results: In Table 2, Vit D insufficiency correlates with higher HDL-C, yet in Table 3 it is associated with low HDL. Please resolve/explain this paradox in Tables and text, if correct, or correct if in error. It would be of interest to assess Vit-D status by religious persuasion/public dress habit and by indoor/outdoor work. Can you do?

5) Discussion: If obese have low circulating but high adipose Vit-D stores, what is the implication for health? Does is follow tissue or serum levels more closely (can you speculate or provide literature information)? Do you have any information about incident CV diseases or supplement habits, trials in Malaysia?

Level of interest: An article of importance in its field

Quality of written English: Acceptable

Statistical review: No, the manuscript does not need to be seen by a statistician.

Declaration of competing interests:
I declare that I have no competing interests