Reviewer’s report

Title: Association of sleep duration and insulin resistance in Taiwanese vegetarians

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Reviewer: Matthew Sperrin

Reviewer’s report:

The main question considered by this article is the (independent) association between sleep duration and insulin resistance in the Taiwanese vegetarian population. In general, the methodology and analysis are well described and appropriate. However, there are additional things I would like to see, as detailed below.

Major Compulsory Revisions

1. ‘Sleep duration’ needs to be analysed as a continuous variable. This is particularly important given that a) this is the key variable under consideration in the article and b) a non-linear relationship between sleep and insulin resistance has been found before (author’s ref 9). Ideally one could do a multiple logistic regression with spline terms for modelling the non-linear relationship of insulin resistance with sleep duration; at the very least though one should try the regression with linear, quadratic and possibly higher order terms for sleep duration. An appropriate graphical summary of the relationship should then be produced. See, for example, ‘loess’ function family in R.

2. The research question could be clarified a little: are we interested in whether there is the same relationship between sleep duration and insulin resistance in vegetarians as in the general population, or whether it is different (i.e. there is some interaction between vegetarian status and sleep duration variables in the prediction of insulin deprivation). And why should one think to look in this subgroup in particular – if I show a result for a population, I could then posit infinite hypotheses about whether the same effect is found in any subgroups within that population. Some of this is hinted at in the background and discussion but could be made clearer.

Minor Essential Revisions

3. I have a couple of questions about the recruitment:
   a. Participants are recruited following a physical examination: what causes people to report for this examination? Is it routine (in which case what proportion of the population report?) or is it triggered by something?
   b. What proportion of eligible participants were actually recruited?

4. The methods section of the abstract needs rewording to clarify that there are
433 participants AFTER restriction to Buddhist vegetarians.

Discretionary Revisions

5. Connected to points 3b and 4, one could include a flow chart describing the recruitment process.

Level of interest: An article whose findings are important to those with closely related research interests

Quality of written English: Acceptable

Statistical review: Yes, and I have assessed the statistics in my report.

Declaration of competing interests:

I declare that I have no competing interests