Reviewer’s report

Title: Is Impaired Energy Regulation the first order of the Metabolic Syndrome in ethnically diverse populations in the USA and Taiwan?

Version: 2 Date: 22 January 2010

Reviewer: Leoné Malan

Reviewer’s report:

The study is interesting and its contribution lies in viewing the MS from another perspective across ethnicity through exploratory factor analyses (EPA). The studies under scrutiny are the NHANES 2001-2 and the Taiwanese National Health Interview Survey (TwSHHH 2002). Some major and minor concerns though do exist but too many serious concerns regarding the design and methodology exist to recommend it for publication.

Major Compulsory Revisions

1. The one outstanding major concern is that the design of the studies involved were not taken into account/or addressed. The TwSHHH 2002 study screened MS in participants stratified according to urbanization levels. No information regarding this fact is provided for the NHANES study either. The NHANES study screened nutritional levels in the US population but recruitment or design is not included in your paper. Therefore, comparing the whole group or even gender groups without taking into account urbanization status is not acceptable. On p5, 2nd paragraph you mention confounding factors without even acknowledging the effect of urbanization? At this point you have to ask yourself: Do the participants have the same socio-economic status? Developing countries and urbanization are major contributors to the MS (See the work of: Björntorp et al., 2001; Daneai et al., 2007, Malan et al., 2008; Port et al., 2002005; Rosmond, 2005, Steptoe et al., 2005, etc.).

2. Analyses should be done for different gender groups, adjusting for age:

# In Tables 3 and 4, it is clear that BP prevalence is masked as gender groups are not taken into account in the analyses compared to your findings in tables 1 & 2. You did EPA only on ALL ignoring gender differences. Many of the BP values (Tables 1 & 2), taken into account high SD, will fall within hypertensive range and big differences exist within gender groups. P-values are lacking as well as medication usage. This should be done as higher BP is more prevalent in males and even more prevalent in non-Hispanic blacks according to the European Society of Hypertension Guidelines, 2007.

# Further, the Taiwanese males and females BP could be of interest if you stratify groups according to urbanization level.

Minor Essential Revisions

4. Introduction (as well as discussion): Far too long - missing focus. Accentuate why you are comparing ethnic groups and why this way of EPA necessary.

5. Language editing needed (e.g. p3, last line; p14, reference in brackets; etc.).

6. Methods:
   # Not clear regarding ethical guidelines, recruitment, time of sampling
   # Blood pressure measurements non-existing: this is unacceptable as nothing is known regarding the: apparatus used, position, protocol.
   # In- and exclusion criteria?

7. Results:
   # Alignment in tables needs attention
   # Large standard deviations exist for age and BP. Why was no adjustments made for age – being one of the biggest confounders for BP especially if the differences in non-Hispanic whites are viewed.
   # Lack of p-values is not acceptable. Pearson correlations also quite small and are they significant? Describing the correlations is also not quite clear as it is not sufficient to say they are more or less the same as they are not. Why were no adjustments made? E.g. age, alcohol and smoking consumption, physical activity? These factors clearly have an influence on the MS components.

Discretionary Revisions:
# Figure 1 adds nothing to compliment manuscript. Please omit.
# In Table 3 BMI is mentioned as one of the MS components. It is not a MS component even if inter-correlation exists.
# What is meant with the legend in Table 3: < 30 BP mmHg deleted?
# Table 5, not discussed although you can’t compare your findings with the Swedes as their study included much older people and they excluded drug usage and it is not sure if only urbanized people were included.

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

**Quality of written English:** Needs some language corrections before being published

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

**Declaration of competing interests:**

I declare that I have no competing interests