Reviewer's report

Title: Association between Television Viewing and the Risk of Metabolic Syndrome in a Community-based Population

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Reviewer: David W Dunstan

Reviewer's report:

General
This manuscript describes the results of a cross-sectional study involving more than 2000 Taiwanese subjects that investigated the association between television viewing and the metabolic syndrome using the modified NCEP criteria. Television viewing, occupational physical activity, leisure-time physical activity and total activity were estimated using self-reported data.

This study provides the first data on this topic in a non-Caucasian population. A strength of this study is the ascertainment of occupational physical activity, which has typically not been assessed in earlier studies. While the authors have considered the potential limitations of cross-sectional survey designs and not having data on other sedentary behaviours, the measurement error associated with self-reported data should also be acknowledged.

Overall, the manuscript is well-written and provides reasonable detail regarding the study population, methodology and the analyses undertaken.

However, some aspects of the manuscript do require additional consideration.

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Major Compulsory Revisions (that the author must respond to before a decision on publication can be reached)

1. The authors need to reconsider the terminology they have used to describe the associations between TV time and the MS. This is a community-based cross-sectional study of a selection of Taiwanese residents living in Taichung City who were surveyed between October 2004 and September 2005. The terminology used by the authors throughout the manuscript (ie: risk of 'developing' the metabolic syndrome) implies that the outcome is 'incidence' of the MS, which can only be ascertained from longitudinal studies. From an epidemiological viewpoint, cross-sectional studies can only provide information on associations with the 'prevalence' of the MS in this population. Only longitudinal studies can determine whether a specific risk factor can influence the development of a condition. In its present format, the manuscript is misleading since it states that watching excessive television places an individual at greater risk of developing the MS. TV viewing is associated with an increased prevalence of the MS (ie: incidence was not assessed). Careful consideration and
appropriate re-wording is warranted on the terminology used throughout the manuscript.

2. The rationale for using the three categories of TV viewing status (< 14, 14-20 and > 20 hr/week) needs to be provided. Were tertiles considered? In both men and women, the extreme TV group (> 20 hr/week) contains significantly more subjects than the 2 other groups. What is the likely influence of this imbalance on the findings?

3. Table 4: The authors provide details of the covariates that were included into the adjusted models. It is noted that occupational activity is included into the model and not total activity. What is the rationale for not including total activity into the adjusted model? While this is probably a decision based on the univariate analyses (eg: not significant in women), the same could be said about smoking – which has been included into the model.

4. Following on from the point above, it is stated that “Since total activity (leisure-time activity + occupational activity) might be inversely associated with sedentary behaviours….”. However, Table 3 reveals that, while statistically significant, the correlation between total activity and TV viewing is very weak (-0.09). This is consistent with several other studies that have shown very weak correlations between TV and PA (mostly leisure-time activity). Figure 1 is very useful as it describes the joint association between TV and physical activity. Importantly, it shows that, at least in women, there is an increased odds ratio even in those who undertake sufficient physical activity. From a public health viewpoint, this is an important message as it indicates that sedentary behaviour and physical activity are two distinct behaviours. It is recommended that the authors remove the sentence and replace with a brief statement describing how the joint associations (TV/PA) were assessed.

5. The rationale for selecting the categories of leisure-time activity, occupational activity and total activity needs to be provided.

Minor Essential Revisions (such as missing labels on figures, or the wrong use of a term, which the author can be trusted to correct)

1. With regards to the TV viewing time question – could the individual have been doing any activity during this time? For instance, could the individual be engaged in preparing the meal whilst watching TV? Or did the TV time question specifically relate to the time whereby the individual was only sitting watching TV?


Discretionary Revisions (which the author can choose to ignore)

What next?: Unable to decide on acceptance or rejection until the authors have
responded to the major compulsory revisions

**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