Reviewer's report

Title: Relation of adiposity, screen time and physical activity in offspring to their parents

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Reviewer: Gabriel Shaibi

Reviewer's report:

Steffen and colleagues present an interesting analysis on a well-described cohort of parents and their off-spring who have participated in metabolic studies. Their findings confirm what others have reported in that adiposity (total and regional) of parents is related to similar measures in their off-spring. In addition, adiposity measures of parents during childhood are related to corresponding measures of their offspring. The authors also show that sedentary behaviors (namely screen time) of children are correlated with their parents both during childhood and adulthood. Although these findings are mostly confirmatory to what others have previously reported, the fact that both cohorts are well-described and the inclusion of adiposity measures as well as lifestyle behaviors in the same report are strengths.

Despite these strengths, there are several factors mostly related to the analytical approach that could strengthen the manuscript as a whole.

The authors present mostly correlational analysis (some of which are adjusted for demographic characteristics) and I believe that it would be of interest to know which of the parental measures (as a child or adult) more strongly influence off-spring adiposity. For example, the authors could run multiple linear regression analyses the include parental measures as independent variables in the same model with the off-spring variable of interest as the dependent variable. These could be a series of models that build upon each other with a final, parsimonious model that explains the largest amount of the total variance in the measure of interest. These models would help explain whether childhood parental measures are more predictive of offspring adiposity than adult measures. Moreover, the authors could include regional adiposity (visceral and subcutaneous) along with DEXA measures in the same model as predictors of off-spring visceral fat.

Given that the authors use heritability estimates throughout their discussion, these models can help define whether parent measures as children act as surrogate markers of a genetic influence in their off-spring.

Minor Essential Revisions:
1. Table 4 does not seem to add value beyond the data that are already presented. It is not clear why BMI status as a % would have mean and standard error values and why each column does not add up to 100. Why not present as you did in Figure 1? If presented side-by-side, readers could appreciate whether
adult or child adiposity is a better discriminator of off-spring weight status.

2. Suggest reviewing tables for consistency in presentation for spacing (space between +) and number of significant figures.

3. More information is needed on how family membership was accounted for in the regression analysis. Given the larger number of off-spring than parents, there must be sib-ships in the analysis that may be contributing to the correlations. What happens when only single dyads (parent-child) are examined?

4. Although possibly beyond the scope of the study in terms of samples size, the authors could comment on whether maternal or paternal influence is stronger in determining child adiposity and whether sex is concordance may influence the observed results. This could be included in the discussion.

**Level of interest:** An article of importance in its field

**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