Reviewer's report

Title: Cardiovascular inflammation in healthy women: multilevel associations with state-level prosperity, productivity and income inequality

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Reviewer: Simone Santos

Reviewer's report:

The question posed by the authors is well defined and the research about inflammation biomarkers and socioeconomic contextual factors is interesting and presents new approaches. Therefore, the data sound not very original because analysis at state level tends to reduce indicators values to the average of a set of heterogeneity that are hidden. This level appears do not be the most important considering relationship between biomarkers inflammation and contextual socioeconomic status.

Major Compulsory Revisions

METHODS

The multilevel analysis is appropriate and well described. But, in my point of view, the analysis of biomarkers distribution by individual-level household income categories within quartiles of state level characteristics must be done using ANOVA to statically test if there are significant differences between median values of biomarkers along quartiles state level characteristics. Figures showed in the manuscript (figure 1, 2 and 3) did not appear to demonstrate real differences between quartiles of state level characteristics for each individual-level household income category. There are not linear gradients on trend at state level considering all individual categories and appear to there are clear gradient trends on distribution of biomarkers within each state level category along individual categories.

DISCUSSION

The discussion and conclusions are well balanced and adequately supported by the data, excepted about trends showed by Figures 1, 2 and 3, as I mention above

LIMITATIONS

The limitations of the work need to be complemented by considering limitations related to average values at state-level.

Level of interest: An article of limited interest

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.