

Peer Review Report

Review Report on Changes in obesity prevalence attributable to ultra-processed food consumption in Brazil between 2002 and 2009.

Original Article, Int J Public Health

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EVALUATION

Q 1 Please provide your detailed review report to the authors. The editors prefer to receive your review structured in major and minor comments. Please consider in your review the methods (statistical methods valid and correctly applied (e.g. sample size, choice of test), is the study replicable based on the method description?), results, data interpretation and references. If there are any objective errors, or if the conclusions are not supported, you should detail your concerns.

See attached

This is an important study because it uses high quality data in a country with rapidly increasing ultraprocessed food (UPF) consumption and obesity prevalence to determine the contribution of the former on the latter. This is a critical piece of research to add to the rapidly building evidence base implicating UPF as a driving force for the obesity pandemic.

My major comments are about the methods. I am not a statistician but I have considerable epidemiological experience in obesity and I feel I should be able to understand the methods much better than I did after re-reading them several times. I get it that the authors have generated two cross-sectional relationships between UPFs and obesity and that the true relationship longitudinally is likely to be somewhere in the middle of these two estimates. The rationale for generating table 3 is unclear to me. Firstly, they take the equation developed within each dataset and then apply it back to the same dataset to generate a predicted estimate of obesity prevalence. This does not seem statistically kosher or even necessary since they have a measured value ie for 2002/3, the measured value of 9.91% seems a better point estimate to use than the 10.15% predicted value. If it is considered that the true relationship between UPFs and obesity is the average of the 2002/3 estimate (0.71) and the 2008/9 estimate (0.88) then this gives a slope of 0.8. The measured increase in obesity prevalence is 3.38 percentage points and the measured increase in UPFs is 3 percentage points. The predicted rise in obesity prevalence from the rise in UPFs is $0.8 \times 3 = 2.4$ pp rise in obesity. This is 71% of the measured rise in obesity, which is some distance from the 28% estimated by the authors.

It may be that this view is too simplistic or not statistically doable, but I feel that the authors need to explain their methods and rationale in a more accessible way.

Minor points

L5 The global burden of disease uses a metric of 'High BMI' which is the amount that a population's mean BMI is above the optimal mean BMI (which minimises the prevalence of overweight/obesity and underweight). This optimum is a population mean BMI of about 22.

L23 It is more than 'several' countries - it is many, many countries - all middle income and many low income countries. The high income countries are plateauing but at very high proportions of sales.

L43 The RCT was ad libitum for calories, not calorie-clamped as implied.

L152 The authors should justify the choice of obesity as the outcome variable rather than BMI>25 or mean BMI. UPFs will be contributing to unhealthy weight gain across the spectrum. Are they assuming that the PAF for increases in obesity prevalence will be the same as the PAF for all unhealthy weight gain?

L169-174 Since this analysis uses cross-sectional and longitudinal analyses, please use 'higher/lower' for cross-sectional and 'increase/decrease' for longitudinal and make it clear that you are assuming that the cross-sectional gradient represents the longitudinal gradient.

L220 Does 'this age group' refer to younger than 5 or older than 5?

L225 Being able to see the distribution curves for changes in UPFs and obesity prevalence would be nice to give a better sense of the distribution of them across the strata (even if it is a figure in an appendix).
L305 Can the relationship between UPFs and BMI from the international ecological study be compared to relationship between UPFs and obesity in this within country ecological study? I know that the outcomes (BMI and obesity prevalence) are different, although highly correlated. If the international study showed comparable slopes as the Brazilian study, that would give considerably more confidence in the estimates being made.
L316 Attributable proportions of disease are different for obesity and overweight. Some of the references are for overweight + obesity.

Q 2 Please summarize the main findings of the study.

ultra-processed foods explain a substantial proportion of the increase in obesity obesity over 6 years

Q 3 Please highlight the limitations and strengths.

The main part of the methods needs better explanation.
Excellent measurements and ideal context for examining the research question

PLEASE COMMENT

Q 4 Is the title appropriate, concise, attractive?

yes

Q 5 Are the keywords appropriate?

yes

Q 6 Is the English language of sufficient quality?

yes

Q 7 Is the quality of the figures and tables satisfactory?

Yes.

Q 8 Does the reference list cover the relevant literature adequately and in an unbiased manner?)

yes

QUALITY ASSESSMENT

Q 9 Originality



Q 10 Rigor



Q 11 Significance to the field



Q 12 Interest to a general audience



Q 13 Quality of the writing



Q 14 Overall scientific quality of the study



REVISION LEVEL

Q 15 Please take a decision based on your comments:

Minor revisions.