Reviewer's report

Title: Skipping breakfast among 8-9 year old children is associated with teacher-reported but not objectively measured academic performance two years later

Version: 1 Date: 11 Jul 2017

Reviewer: Nicole Lazar

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This paper explores the relationship between skipping breakfast in young school-age children, and teacher-reported and standardized test results two years later. The study includes a large (several thousand) cohort of children in Australia. At age 8-9 their breakfast-eating was assessed on three occasions in near temporal proximity. Two years after that, the scores of the children on standardized tests, as well as teacher evaluations of their behavior and proficiency, were collected. Investigators looked at the differences between the children who didn't skip breakfast on any of the three occasions and children who skipped at least once.

Assessment of statistical aspects The sampling strategy was based on defining strata at the levels of state/territory and urban/rural. Within each stratum, a "random sample" of 10% of children was taken. The description sounds to me like a stratified simple random sample, but the authors describe it as a "two-stage clustered design." Please clarify this; the two designs are similar, but not precisely the same. Also please clarify if, within each region, a simple random sample of children was taken, or if this was done in some other way.

The definition of "breakfast skippers" and the extrapolation of missing breakfast more than once (out of three days checked) to behaviors and test results two years later is quite shaky. Hardly any children skipped more than once, out of those three, which does lead one to question the definition and the reliability of the results. Analysis would have been strengthened had data on breakfast consumption been collected at more than one wave. Maybe this wasn't possible but I'd like to see some discussion of the choice made here. In some sense, it's not surprising that so many of the comparisons yielded little or no difference.
I'd like to see an even more detailed accounting of the original wave 1 sample and how/where attrition of different types occurred. Figure 1 goes a long way toward providing this information, but I think that the step of drop-out because of no permission to access NAPLAN data is maybe missing. This would help with the discussion at the bottom of manuscript page 8, top of page 9, where it looks like there are some inconsistencies, but I suspect that they arise because of this missing step.

Please report the response rates from the teachers on behavioral and academic measures. It's possible to get some idea of this from Figure 1, but there could also be other reasons why the teacher-reported data weren't available.

With so few Indigenous children (n=31) it is very hard to draw any concrete conclusions about this variable. A shift of even one child from "not skipper" to "skipper" or vice versa could have a big effect on the statistical test here.

What would be considered a "meaningful" difference in teacher-reported assessments or standardized test performance? On page 13, a 3% difference is mentioned as "unlikely to be of great importance" (even though it was "statistically significant"). It would be helpful for interpretation of the analysis to have this context more broadly, to the extent possible.

Do the teachers know much about the home life of the children, e.g. who might be "likely" to be skipping breakfast, or who they think might be likely to skip breakfast? Teacher prejudice or buying into social stereotypes might partially explain why students who skipped were rated more poorly by teachers but not on more objective measures. The authors mention this briefly at the end, however I wonder if there might be a way (in future studies) to quantify this?

Are the methods appropriate and well described?
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