Reviewer’s report

Title: Free school meals as an approach to reduce health inequalities among 10-12-year-old Norwegian children

Version: 1 Date: 01 Jun 2019

Reviewer: Jessica Soldavini

Reviewer's report:

This manuscript describes the effects of a free school meal program in Norway. Although there are some limitations in the study design, it can help to inform future studies and has public health implications especially since Norway does not currently have a national free school meal program. I have some comments and suggestions for the authors to address to help strengthen the manuscript.

Abstract
Line 22: Add "an" before "intervention and control group"

Line 23: You use the term "meal habits" here, but other parts of the paper use "dietary habits." "Dietary habits" seems to be a better way to describe this than "meal habits" since you assessed this with an FFQ which only looks at dietary intake rather than other aspects of consuming a meal. I suggest changing the term "meal habits" here to "dietary habits" to be consistent with the body of the manuscript and to better describe what was actually assessed.

Line 26: It says the FFQ was completed at baseline, six months follow-up and after one year. This does not match what is in the methods section, which says (lines 96-98) data were collected in August/September 2014, first follow-up in January 2015 (about 4-5 months), and second follow-up in June (about 9-10 months). The results section of the abstract also refers to six month and one-year follow-up (line 32).

Line 34: I suggest changing "stronger increase" to "greater increase."

Lines 38-41: It would be helpful to indicate that this result was statistically significant either by showing the p-value or adding the term "significant" to the sentence. The other results you discuss all indicate they were significant.

Line 42: Delete "of"

Background
Line 71 says that there is no school meal arrangement in Norway, but lines 75-77 talk about guidelines for provided school meals in Norway and line 78 says Denmark has a similar school meal arrangement
to Norway. It would be helpful to provide a little more detail on the typical school meal arrangement in Norway. It would also be helpful to give some information on the milk subscription program mentioned in lines 105-106.

Lines 87-89: This sentence should either be reworded or have additional references added. Are there other studies to support this? The way the sentence is worded makes it sound like it is common that school-based interventions benefit children with higher educated parents more, yet only one study is cited. In lines 258-260, it mentions that the results are similar to two other studies that saw a reduction in social inequality.

Methods
Lines 111-112: Provide a little additional detail on the schools, such as geographic location, included in the study and whether they were similar to each other.

Lines 112-113: Clarify how the children were allocated to the intervention and control groups. Lines 285-289 talk about how the intervention group was in the same school as part of the control group, so it seems there was one class participating in the intervention and part of that school plus another as a control group. Specify these details in the methods section.

Line 159: Change "quantitative variables" to "continuous variables" and "qualitative variables" to "categorical variables."

Results
This paper seems to be framed around how the intervention had an effect for children in the lower SES group but not higher SES group. Table 3 shows the F and p-values for the interactions and the value from the change in scores is showed in parentheses, however, it is never presented what the actual Healthy food scores are for the two groups. I would like to know whether there were significant differences between baseline values in the children from higher and lower SES groups. I also think it would be helpful to show the values for the variables stratified by the two different SES groups.

Line 177: Change "Study characteristics" to "Sample characteristics"

Line 186: Insert "in" between "follow-up" and "TI" so it says "follow-up in T1…"

Line 199: I suggest changing "stronger increase" to "greater increase."

Discussion
Line 223: I suggest changing "stronger increase" to "greater increase."

Lines 256-258: It would be helpful to elaborate a little on this and give a little more detail on the potential policy implications of a free healthy school meal in Norway and what this could look like.

Conclusions
No suggested revisions
Are the methods appropriate and well described?
If not, please specify what is required in your comments to the authors.

Yes

Does the work include the necessary controls?
If not, please specify which controls are required in your comments to the authors.

Yes

Are the conclusions drawn adequately supported by the data shown?
If not, please explain in your comments to the authors.

Yes

Are you able to assess any statistics in the manuscript or would you recommend an additional statistical review?
If an additional statistical review is recommended, please specify what aspects require further assessment in your comments to the editors.

I am able to assess the statistics

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