Reviewer’s report

Title: The contribution of childhood circumstances, current circumstances and health behaviour to educational health differences in early adulthood.

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Reviewer: Anne Hammarström

Reviewer’s report:

The manuscript deals with an important topic, aiming at assessing the contribution of explanatory factors for the educational gradient in health. The research questions posed by the authors are well defined. The authors have published extensively within the field and the research questions are well-founded. Overall, the manuscript is well-written.

Major comments

The major weakness of the manuscript is the design of the study. The authors are well aware of the weakness with a cross-sectional design including retrospective data collection as the current situation may influence the retrospective perception of childhood conditions. The aim of the study (to compare the contribution of childhood compared to adult conditions for the educational gradient in health) cannot be analysed correctly with these data.

Also analyses of causality are difficult to perform in the present material. The authors frequently use of the concepts such as “explanatory variables” and mediating without defining them. The question of causality can not be analysed satisfactory in the present study.

Another major weakness of the design is that the possibility of reversed causation is not taking into account. No discussion of this limitation is included.

Aside from these major limitations of the study, the authors use an interesting method of analysing the contribution of each independent variable on the educational gradient in health. However, more information is needed in relation to the use of statistical methods (bivariate and/or multivariate logistic regression analyses) in table 2.

As the non-response rate is 32 per cent an analyses of non-responders would be valuable, but no such analyses is presented.

Minor comments

The use of an almost ten year old reference (number 44) is not adequate in relation to the text; “is still poorly understood.” Also, it is an understatement that only few studies have analysed the health inequalities in early adulthood.

Level of interest: An article of limited interest

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.