

PEER REVIEW HISTORY

BMJ Open publishes all reviews undertaken for accepted manuscripts. Reviewers are asked to complete a checklist review form (<http://bmjopen.bmj.com/site/about/resources/checklist.pdf>) and are provided with free text boxes to elaborate on their assessment. These free text comments are reproduced below.

ARTICLE DETAILS

TITLE (PROVISIONAL)	Progress and setbacks in socioeconomic inequalities in adolescent health-related behaviours in Brazil: results from three cross-sectional surveys 2009-2015.
AUTHORS	Azeredo, Catarina; Rezende, Leandro; Mallinson, Poppy; Ricardo, Camila; Kinra, Sanjay; Levy, Renata; Barros, A

VERSION 1 – REVIEW

REVIEWER	Bjørn E. Holstein University of Southern Denmark, National Institute of Public Health, Denmark
REVIEW RETURNED	08-Aug-2018

GENERAL COMMENTS	<p>Review of Manuscript bmjopen-2018-025338: Progress and setbacks in socioeconomic inequalities in adolescent health-related behaviors in Brazil, 2009-2015</p> <p>The authors used three large cross-sectional studies to analyse changes in social inequality in health related outcomes and observed very different patterns by health related outcome measure. The manuscript addresses an under-studied issue, namely how social inequality in adolescent health changes over time. It is interesting to see that changes differ by health outcome. I have a number of proposals for the authors.</p> <p>Abstract: It would be appropriate to mention the 12 outcome measures rather than the classification of health outcomes (if possible within the word limit).</p> <p>Introduction: The Introduction section provides a nice and convincing justification for the study. In my opinion, it is important that the aims also mention that the analyses address both absolute and relative social inequality.</p> <p>Methods: The methods section includes the most important information about the study and I appreciate the sophisticated statistical analyses. I wonder why the participation rate in the last survey was so much higher than in the first and second study; please explain if the reason is documented.</p> <p>I do not understand why the authors show the questions and response keys in an appendix. It is more user-friendly to provide this information in the text and it is practicable to do so for only 12 items. If you do so, please also consider whether Table 1 is needed.</p>
-------------------------	--

	<p>Results: Appendix 2 is complementary to Table 2 and should in my opinion be part of the main text rather than an appendix. In this case, Figure 1 is not really needed.</p> <p>Discussion: This section covers most of what you expect: A highlight of key findings, comparison with other relevant studies, interpretation of findings, comments on study design, potential selection bias and measurement bias, and a brief section about implications. I have no further requests.</p> <p>References: I do studies of changes in social inequality in adolescent health and am so pleased about the authors' choice of references – they appear to be on top of the literature.</p>
REVIEWER	Brad Crammond Monash University, Australia
REVIEW RETURNED	11-Dec-2018
GENERAL COMMENTS	<p>Honestly this is an excellent paper reporting a significant and well-conceived piece of research.</p> <p>The statistical analysis was presented in a welcome amount of detail and the discussion of the results is clear and thoughtful.</p>

VERSION 1 – AUTHOR RESPONSE

Reviewer: 1

Reviewer Name: Bjørn E. Holstein

Institution and Country: University of Southern Denmark, National Institute of Public Health, Denmark

Please state any competing interests or state 'None declared': None declared

The authors used three large cross-sectional studies to analyse changes in social inequality in health related outcomes and observed very different patterns by health related outcome measure. The manuscript addresses an under-studied issue, namely how social inequality in adolescent health changes over time. It is interesting to see that changes differ by health outcome. I have a number of proposals for the authors.

1. Abstract: It would be appropriate to mention the 12 outcome measures rather than the classification of health outcomes (if possible within the word limit).

Authors: Following the reviewer's recommendation, we have amended the abstract accordingly.

"Main Outcome measure: We assessed 12 health-related behaviours (irregular fruit, vegetables and bean consumption; regular soft drinks consumption; irregular physical activity; alcohol, drug and tobacco use; unsafe sex; involvement in gun fights; bullying victimization and domestic violence victimization), under the broad domains of lifestyle risk behaviours, engagement in risky activities and exposure to violence. Socioeconomic status was assessed through an asset-based wealth index derived from principal components analysis. Absolute and relative inequalities in these health behaviours and inequalities trends were investigated."

2. Introduction: The Introduction section provides a nice and convincing justification for the study. In my opinion, it is important that the aims also mention that the analyses address both absolute and relative social inequality.

Authors: We have amended the introduction to include the information regarding absolute and relative social inequality, as follows:

“In this study, we assessed levels and trends in socioeconomic inequalities in adolescent health in Brazil between 2009 and 2015, addressing absolute and relative measures of inequality. We used data from three large representative health surveys of adolescents living in Brazilian state capitals. We selected 12 indicators under 3 broad domains (lifestyle risk behaviours, engagement in risky activities and exposure to violence) to provide a holistic view of adolescent health inequalities in Brazil.”

3. Methods: The methods section includes the most important information about the study and I appreciate the sophisticated statistical analyses. I wonder why the participation rate in the last survey was so much higher than in the first and second study; please explain if the reason is documented.

Authors: We have double-checked the response rate for 2015 survey and, we found a typing mistake. The correct response rate was 85.2%, not 95.2%. Thank you for this careful observation. We have amended this information, as follows:

“ The total number of students included in our analysis was 60,973 (final response rate 83.8%) for 2009, 61,145 (final response rate 82.2%) for 2012, and 51,192 (final response rate 85.2%) for 2015 surveys [11-13].”

4. I do not understand why the authors show the questions and response keys in an appendix. It is more user-friendly to provide this information in the text and it is practicable to do so for only 12 items. If you do so, please also consider whether Table 1 is needed.

Authors: Following the reviewer’s recommendation, we have included appendix 1 as table 1 and withdraw the former table 1.

5. Results: Appendix 2 is complementary to Table 2 and should in my opinion be part of the main text rather than an appendix. In this case, Figure 1 is not really needed.

Authors: Although appendix 2 shows complementary information to Table 2, Figure 1 shows information in a friendlier way for the readers. On the other hand, appendix 2 shows more detailed information, which could be of interest of some readers. Since we have no more space for adding another table/figure, and to include figure 1 as appendix would not be rationale, we opted to keep the appendix 2 as such, and Figure 1 in the main text. However, if the editor few strong about this, we are happy to reconsider this.

6. Discussion: This section covers most of what you expect: A highlight of key findings, comparison with other relevant studies, interpretation of findings, comments on study design, potential selection bias and measurement bias, and a brief section about implications. I have no further requests.

Authors: thank you for this comment.

7. References: I do studies of changes in social inequality in adolescent health and am so pleased about the authors' choice of references – they appear to be on top of the literature.

Authors: thank you for this comment.

Reviewer: 2

Reviewer Name: Brad Crammond

Institution and Country: Monash University – Australia

Please state any competing interests or state 'None declared': None declared

Honestly this is an excellent paper reporting a significant and well-conceived piece of research. The statistical analysis was presented in a welcome amount of detail and the discussion of the results is clear and thoughtful.

Authors: thank you for this comment.

Editorial requests:

- Please include the study design in the title.

The inclusion of the study design in the title has made the title extremely long. In addition, the abstract describes the study design (following the Strobe recommendation), and therefore, we believe that it is enlightening. However, if this is an editorial requirement, our suggestion is "Progress and setbacks in socioeconomic inequalities in adolescent health-related behaviours in Brazil: results from three cross-sectional surveys 2009-2015".

- Please complete and include a STROBE checklist, ensuring that all points are included and state the page numbers where each item can be found. The checklist can be downloaded from here: <http://www.strobe-statement.org/?id=available-checklists>

Authors: Accomplished.

VERSION 2 – REVIEW

REVIEWER	Bjørn Holstein University of Southern Denmark, National Institute of Public Health, Denmark
REVIEW RETURNED	27-Dec-2018

GENERAL COMMENTS	The authors have addressed the reviewer comments in a satisfactory way and I have no further comments or requests
-------------------------	---