Reviewer’s report

Title: The association between physical activity and healthcare costs in children - results from the GINIplus and LISAplus cohort studies

Version: 1 Date: 11 December 2014

Reviewer: Katia Gallegos-Carrillo

Reviewer’s report:

Major compulsory revisions

1. I would suggest to the authors to include more information related with physical activity (life styles) and Healthcare, only one reference was presented. The authors used three paragraphs to talk about information of physical activity benefits and consequences of lack of physical activity, which have been well described before. I think one paragraph will be enough. Thus, the question needs more argumentation, because specific background are still lacking.

In addition will be useful to include new data about prevalence of obesity in Germany (data from 2007), and also to justify why the authors chose to analyze this age group (9-12 years).

2. Describe detailed in the methods section the design of the study. Because although the data came from a longitudinal study the analysis is cross sectional, include the period of this study.

It is necessary, that authors describe with more information the aim to measure healthcare utilization with the first questionnaire, the mean age of participants when this questionnaire was applied.

Physical activity is not clear if its measurement included intensity, quantity and frequency and how was built the physical activity categories. The self-administered questionnaire to measure physical activity has limitations and more if was answered by parents. In addition in the case of school age children the self-report by parents is yet more inexact than the information provided by the subject of study.

I would like to add about the relationship between PA and the outcome variable. In this case it is difficult to capture the scope of PA along the time and its impact in the health status and then its influence in healthcare utilization and costs with a cross-sectional study. The proposal is valuable, but it is important to consider the limitation of this approach.

Please, include information about the time when the data collection was carried out.

About the measure of healthcare utilization how this variable was processed. It is not clear if the variables used to measure the aim outcomes where a score, a continuous scale. etc.
Report the year of the prices to calculate the costs and if was used a discount rate.

The indirect costs were only measure in one category, while direct costs include several kind of healthcare; it is noteworthy that the indirect costs are not same for a hospitalization than for visits to the physician or specialist, for example. Because, was considered this approach, explain the limitations.

3. The data are interesting, but in the description of the data, the authors need to explain the main results and not only describe the type of data that are presenting. In which data is necessary to emphasize.

The authors must to explain differences in the region of study, why they are assessing this data by region and why Munich is the category of reference. In this case, some information about the minimum characteristics of the health system will be useful to understand the context and the results.

I would suggest presenting the data combined in the same table. For example, results of direct costs (total, physician, therapist, etc.) (logistic vs. GLM) to capture the differences in the results due the different kind of analysis. Because both the row and column in the two tables are the same.

4. Do the figures appear to be genuine, i.e. without evidence of manipulation?

It seems that the only figure is genuine.

5. The structure of the manuscript is adequate following the standards. However, the results section is too large and with a structure in some way complex. While the discussion is not…

6. Emphasize that this study is cross-sectional, it seems is a follow-up. The data and the findings of the study are related with discussion, however the arguments to try to explain the results are surface, some information conceptual and also theoretical about health care should be used to try to understand differences like in the regions of study. Also, include information about the performance of the health systems.

Results due a different kind of analysis were not discussed, which are the implications for the findings and its interpretation. What are adding the sensitivity analysis.

7. Indicate limitations in the methods of measurement, the way in which indirect costs, were processed and analyzed.

Also, must include information to show the limitation related with the expected results of physical activity practice in a sample of young children, the effect accumulative of the physical activity could be not capture with this kind of design. Discuss on depth this issue, shown by the authors in the abstract.

8. Do the authors clearly acknowledge any work upon which they are building, both published and unpublished?

Agree
9. Do the title and abstract accurately convey what has been found? Agree.
10. Is the writing acceptable? Agree

**Level of interest:** An article of importance in its field

**Quality of written English:** Acceptable

**Statistical review:** Yes, but I do not feel adequately qualified to assess the statistics.

**Declaration of competing interests:**
I declare that I have no competing interests.