Reviewer's report

Title: Does abdominal fat accumulation influence health and health related quality of life in primary school children? First cross-sectional results from the Baden-Wuerttemberg Study

Version: 4 Date: 30 July 2012

Reviewer: Amanda E Staiano

Reviewer's report:

1. Is the question posed by the authors well defined?
Yes

2. Are the methods appropriate and well described?
The authors admit to the limitations of cross-sectional data. Please verify that all data are baseline and collected before the health promotion intervention began. If any data were collected after program implementation, please discuss in the limitations how this may bias the findings. Please detail every variable in the methods, including gestational information, birth weight, parental health habits, etc.

3. Are the data sound?
Yes. However, many data are missing. I suggest the authors test for differences in independent and outcome variables by missing data. I also suggest the authors only use participants with complete data in the analyses. It is difficult to interpret the findings when there are different sample sizes for each variable and each analysis.

4. Does the manuscript adhere to the relevant standards for reporting and data deposition?
Yes.

5. Are the discussion and conclusions well balanced and adequately supported by the data?
The discussion begins with results that were not reported and were not the primary focus – i.e. comparison of obesity prevalence to prior reference groups, differences in obesity prevalence between 1st versus 2nd grade students, and parental BMI and WHtR status. I suggest focusing on the major research question.

6. Are limitations of the work clearly stated?
The first paragraph of the limitations section contains extraneous information and should be condensed to state that the sample is not a representative sample of Germany. In the second paragraph, the authors claim that these are exploratory findings due to the cross-sectional nature of the study, and yet establishing
correlational relationships and exploring factors associated with central obesity using logistic regression are not exploratory.

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 Do the authors clearly acknowledge any work upon which they are building, both published and unpublished?

A reference is provided for the full protocol, yet it is unclear what other manuscripts (if any) have been published on this study. The title indicates that these are the first cross-sectional results published from this study, which is likely why the overall means and details concerning the study are included. However, these detract from the major purpose of this article. I suggest the authors omit the “overall” column from the tables and omit the figures, as these do not substantially contribute to the findings of the present paper.

8. Do the title and abstract accurately convey what has been found?

The abstract should define the location of data collection (city/state/country). The methods in the abstract should state that these are baseline cross-sectional data. The results section in the abstract should state the direction of difference (e.g. centrally obese children had more sick days).

9. Is the writing acceptable?

The writing would benefit from a thorough editing of grammar and style.

In addition to the suggestions above, I suggest the following revisions:

- Major Compulsory Revisions

1. Background: The first paragraph of the background is not essential and could be condensed to 1-2 opening sentences.

2. Statistical analysis: The statistical analysis should be conducted on the dataset containing complete data, with no missing data. Otherwise it is difficult to interpret findings given different sample sizes for each analysis.

3. Statistical analysis: Unadjusted odds ratios to predict central obesity should be accompanied by adjusted odds ratios, using a logistic regression that controls for each covariate. Clarify the major independent variables versus the covariates, and identify these in the results and tables. It appears the authors used stepwise regression in predict likelihood of high sick days – please specify this in the methods, results, and tables, and state whether it was forward or backward stepwise regression. I suggest using this technique for predicting central obesity as well.

4. Statistical analysis: Given the large age range (5-10 years) in the 1st and 2nd grade, I imagine some of the older children had mental, physical, or socio-emotional troubles. Were this data collected? If so, use this as a covariate. If not, address this in the limitations. What are other potential confounders that were not controlled for in the analysis? Please address in limitations.

5. Results: The authors have combined baseline characteristics with study
analysis in the results section and in Table 1. I suggest reporting these separately in both the results and the table. The 2nd and 3rd paragraph of the results are simply reiterating what is already reported in the table, so this can be deleted from the text.

6. Results: Specify the direction for the results on HRQoL – which group was higher or lower?

7. Results: The authors omitted parental weight status from the logistic regression of student absenteeism to avoid multicollinearity, yet the reported correlations are weak. I suggest including these covariates since they are only weakly related to child central obesity. Also, “weight status” should refer to actual weight not to central obesity. Please use consistent terms.

8. Discussion: The first paragraph contains results not report in the results and not tested for significance. Please omit, or else build into the research question and results section with a link to the major research question. The first paragraph would benefit from additional references, including the relationship between WHtR and health risks. I am unclear how the last 3 sentences of the 1st paragraph relate to the paper or are justified by the present findings. The 2nd paragraph would benefit from a topic sentence describing the major findings, then discussing why focusing on modifiable behaviors is important.

9. Conclusions: Wouldn’t health literacy and education need to focus on parents as well, given the young age of the targeted population? The “upwards spiral of weight gain” and the “vicious circle of obesity and lower education level” need further support from the present findings and other literature.

10. Tables: I suggest only reporting percentages in Tables 1 and 2 and reducing the sample to those with complete data (providing comparisons on key variables for missing versus non-missing data). I don’t see the value of the “total” column. I suggest reporting unadjusted and adjusted odds ratios in a 2nd table, since these are the statistical findings and not baseline characteristics.

11. Figures: Omit the figures. This information is reported in the tables.

- Minor Essential Revisions -

1. Abstract – State the location of the study. Move the 1st sentence of the results to the methods section. Specify the direction of differences (e.g. children with central obesity had more sick days than those without central obesity, which group had lower KINDL sub-scores, etc).

2. Background- Every time the word “significant” is used, the direction of association and the comparison groups should be stated. For instance, in paragraph 2, “.. overweight and obese children had higher but not significantly different total health care costs compared to normal weight children.” The statements regarding HRQoL need to be referenced (paragraph 4). Specify the age range for the samples in ref 18-20. If including references on adult samples, make this clear as these have different implications for the present study.
compared to studies of children.

3. Methods- Specify the unit of measure for BMI. Write everything in past tense and omit helping verbs. Report the reliability and validity of KINDL and EQ VAS. Include every variable in the methods section – I notice that gestational information, parental health behaviors, sports participation, and others are not described in the methods.

4. Results: Why was HRQoL excluded from the logistic regression on child abstenteeism?

Level of interest: An article of importance in its field

Quality of written English: Needs some language corrections before being published

Statistical review: Yes, and I have assessed the statistics in my report.

Declaration of competing interests:

I declare that I have no competing interests