Author's response to reviews

Title: Overweight, physical activity, tobacco and alcohol consumption in a cross-sectional random sample of German adults

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Author's response to reviews: see over
Point-by-point response to the reviewers’ comments:

We are once again very thankful for the comments of all three reviewers and we have incorporated nearly all of their suggestions. We also feel that the reviewers’ suggestions helped improving the manuscript further.

Reviewer 1:

**Minor Essential Revisions**

Abstract

*In the results and the conclusions there appear percentages of overweight subjects. Do these include obese subjects as well? If so the word obese/obesity should be added (50.3% of the adults were overweight and obese. A high prevalence of overweight and obesity). If not, the percentages for obese subjects/obesity should also be given.*

The percentages refer to obese or overweight subjects. The manuscript was adapted accordingly.

*Total cholesterol was elevated to 62.0%: above what level?*

Total cholesterol was elevated above the cut-off (>5.2 mmol/l) of the routine laboratory of the university hospital Ulm. These reference values were added to the manuscript.

*The same for triglycerides. They were also elevated to 20.5% but the cut off level to which this comparison is made should be mentioned.*

The applicable cut-off (≥ 2.3 mmol/l) value was added to the manuscript.

*Background*

*The two paragraphs on Echinococcus (In addition to; Based on an initiative;) are irrelevant to the topic and should be omitted.*

These two paragraphs were shortened. We believe that it is necessary to mention the initial purpose of the study. This is also in accordance with the initial comments of reviewer 1 and 3.
Results

Paragraph on BMI Classed as overweight and obese:
When providing proportions of extreme obesity, also include the BMI levels above which this paper considers subjects as extremely obese (BMI > 30, 35, 40?)

The definition of extreme obesity was made according to the WHO grading system. Grade III (BMI ≥ 40) of the WHO classification (the highest class) was addressed by the term extreme obesity. This information was already included in the manuscript: “The proportion with extreme obesity (grade III according to WHO) is at 1.3% for females and 1.0% for males.”

Table 2: The numbers of the columns for obesity degree 2 and 3 are very small and they could be added to produce one column.

Following the reviewer’s recommendations the columns were added.

Physical activity (PA)
The sentence: Exhausting physical activity lasting 0-2 per week or more is unclear. 0 hours of PA and 2 hours of PA are completely different levels of PA and should be separated.

We have to admit that the sentence seems not to make much sense. Physical activity has been assessed in categories (no exercise, >0-2 hours per week, >2-4 hours per week, >4-10 hours per week, >10 hours per week). The manuscript text has been clarified by deleting this sentence completely. The following sentence already includes the same information in a reciprocal way.

Similarly in Table 3: There is a column for “No exercise” and a column for “0-2 hours/week”. 0 exercise should be included in the “No exercise column”.
The number of columns should also be reduced.

The subjects were asked to answer this question by choosing the predefined category (no exercise, >0-2 hours per week, >2-4 hours per week, >4-10 hours per week, >10 hours per week) of physical activity which matches best their personal activity level. In our view it seems reasonable to separate between the subjects who reported “no exercise” and those who reported >0-2 hours of exercise per week. The number of columns has been reduced.

Tobacco consumption
Table 4: The table should include a column for non smokers as well. The columns for 31-40 cig/day and >40cig/day should be added together.

Table 4 shows the number of cigarettes per day which the current or former smokers are/were smoking. The non-smokers are therefore not included into this table. The numbers of non-smokers (for females and males) are already given in the manuscript
text. The number of columns has been reduced according to the reviewers recommendations.

Alcohol
Table 5 There is a column for 0-20g /day and again those who consume 0g/day should be included in the non drinkers. The number of columns in this table should also be reduced because of the small or 0 percentages. There could be one column for 40-80g /day and another for 81 or more.

The column for “0-20g/day” does not include those who consume 0g/day. It was therefore already labelled “>0-20g/day” and a revision was not necessary. The number of columns has been reduced according to the reviewers recommendations.

Laboratory testing
Total cholesterol and triglycerides were elevated according to standard criteria but which are these criteria? Since there is no table on serum lipoproteins it should be defined in the text what these elevated levels of cholesterol and triglycerides are. There is no common agreement on standard criteria.

The missing definitions have been added to the manuscript text.

Discussion
The authors should start with the most important findings. The limitations of the study should appear towards the end of the discussion.

The discussion has been restructured according to the reviewer’s recommendations.

Physical activity (page 23): “the group reported 0-10 hours”
The authors tend to add together the subjects with no PA (0 hours) with those having PA (10 hours) which is very confusing.

Leisure time physical activity has been assessed in categories (no exercise, >0-2 hours per week, >2-4 hours per week, >4-10 hours per week, >10 hours per week). We agree with the reviewer, that adding up to many of these categories makes data interpretation difficult. To make a clear statement in the manuscript, the groups with no and little physical activity have been separated from the groups with higher physical activity.
Reviewer 2:

**Minor Essential Revisions:**

The headings of tables are short and not very informative (except table 1). Table 2 could for instance be:

**Distribution of BMI according to WHO classification in 2187 German adults by gender and age.** This makes the table slightly quicker to grasp. Similar changes are suggested for the subsequent tables.

The table headings have been changed according to the reviewer’s suggestions.

**Discretionary Revisions:**

**Table 6. The risk (Odds ratio) of hepatic steatosis according to age, gender, anthropometric measures and blood lipids. A logistic regression analysis of 1767 adults.**

Similar for tables 8 and 9, think about other ways of expressing the results of the statistical analyses. Least square means may not be intuitively clear to all readers.

The table headings have been amended according to the reviewer’s comments.
Reviewer 3:

**General:**

Again I like to highlight that this study is based on a large and valuable database. In particular in Germany such databases are rare. In general I think it is of value to publish a thorough description of the methods and the profile of health risk factors in this population (i.e. a “design-paper”). As this is a regional sample the simple prevalence rates are of limited interest. However, this descriptive data might be useful as a basis for further more specific publications. The revised paper improved in some points, but in my opinion especially the presentation still needs a revision.

**Major Compulsory Revisions:**

- The aim or research question of the paper is still not well defined. The authors added several logistic regression analyses. By doing this analyses they explicitly test hypotheses, but nothing is stated in the Introduction. Nothing is written why they investigate this relation, why they choose the confounders, Why predicting physical activity by smoking, alcohol use, BMI and not the other way round? These analyses seem to be arbitrary. This intensifies my initial problem with the unfocused writing up.

The tested hypotheses have been added to the study objectives in the introduction. Although the investigation of other relations (for example predicting smoking by other factors) might be equally interesting, we decided to focus on several logistic regression models we thought most interesting. Otherwise the presented data would exceed the limitations of one research article.

- Risk factors are here and there compared for age and gender differences without applying statistical tests. Again I suggest to report confidence intervals or standard-errors for their prevalence estimates, so anyone can evaluate the accuracy of these estimates.

The manuscript text is only describing differences between different age or gender groups. It is not suggesting a significant difference or making statements which require statistical test. All statements requiring a statistical test have been supported by such tests. This information is given in the manuscript text.

Referring to our department of biometry and medical documentation we still think it is correct to apply descriptive statistical methods to our population sample without giving confidence intervals or standard errors. We are describing the prevalence in our sample, which can be precisely calculated without an error. The other reviewers didn’t mention these problems. Confidence intervals were given for the multiple logistic regression.
- I am sorry, I am still not convinced that figure 1 make any sense. I suggest to add the age and gender distribution of the population to Table 1. So the reader can evaluate if maybe weighting is an issue in your sample.

According to the reviewer’s wishes the figure has been deleted and the information was added to table 1.

Minor Essential Revisions:

- Page 18, critical level of consumption is reached at 80 g/day: From a public health perspective much lower thresholds are regarded critical (British medical association 20/30 g; WHO 20/40g)

We agree with the reviewer (and his sources) that a critical level of alcohol consumption is reached at a lower threshold. The manuscript text has been corrected and additional information on the number and percentage of subjects consuming a critical amount of alcohol per day has been added.

Discretionary Revisions:

Regarding your response to the suggestion to refer to the GBD study: I think it is really strange to reject the mayor source on disease burden because you don’t like the findings. By the way, if you look at the risk-factor rankings for industrialized countries I am sure you like this source.

The results of the GBD study have been included into the discussion.