Author's response to reviews

Title: The prevalence of physical, sexual and mental abuse among adolescents and the association with BMI status.

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Author's response to reviews: see over
Rebuttal

Reviewer 2

- In their rebuttal, the authors state that the study population is representative of the population from which it was drawn because it has a 85% response rate. Although a high response rate, it is unlikely that the 15% non-responders were spread evenly across the population. Also, the 25,000 who completed a questionnaire but were not included in the analysis are unlikely to be spread evenly across the population. In the discussion section regarding limitations, I feel it is very important that the authors discuss the possibility that non-participation was not random, and that therefore some parts of the population may be under-represented in this sample. The authors state that they found no evidence the sample differed from the population, but I am not sure what evidence they tested for. It would also be useful to report the 85% response rate in the paper.

We agree with the reviewer and have therefore added the following sentences to our limitation section in the discussion.

(Discussion section, page 11)
Besides, as in all voluntary based research, non-response might not be random. It could very well be that adolescents with certain specific characteristics did not (entirely) complete the questionnaire, leading to either an under- or overestimation of the current findings. Since it was not possible to conduct a non-response analysis, neither the demographics of the non-responders nor the possible differences between responders and non-responders concerning these demographics could be tested.

- Background, paragraph 1:” it is likely that individuals that were abused during childhood or adolescence … become overweight or even obese.” Is this true? If so, a reference is required.

In the paper we have changed likely into hypothesized to stipulate that this is our own expectation based on the previous described literature.
Since maturation of coping styles (12, 16, 17), may be compromised by physical or mental problems (16, 18), it has been hypothesized that individuals who were abused during childhood or adolescence may adopt such ineffective or immature coping styles, which may lead to overweight or even obesity.

- Background, paragraph 2: Please specify the population from which 100,000 victims are drawn (i.e. a country or the world?)

This sentence was changed, it now states that this number is based on the Dutch situation.

Although exact prevalences are unknown, research estimates that physical and mental abuse are more common among adolescents than sexual abuse, with over 100,000 victims each year in the Netherlands alone.

- Methods, sample size contracts abstract sample size. Methods: “In total, 77,270 adolescents completed the questionnaire”. Abstract: “In total 51,856 secondary school students aged 13-16 completed a questionnaire”

The sentence that was used in the abstract was adapted, it now states that the data of 51,856 adolescents was used.

In total, data of 51,856 secondary school students aged 13-16 who had completed a questionnaire on health, well-being and lifestyle were used.

- Methods, sample size: numbers don’t add up to each other. The actual number of participants in each analysis remains unclear and absent from the main manuscript (excluding table footnotes). The methods state 50,420 complete the PA question. It later states 1422 answered the question with ‘I don’t want to answer’ and were excluded from analyses, so the reader needs to calculate 50,420-1422 to find the analysed sample size. Please report it clearly in the paper.
The exact number of adolescents that were used in each of the analysis were calculated and these numbers were added to the method section of this paper.

(Method section, page 6)

In the final analyses on physical abuse included data of 48,998 adolescents, analysis on sexual and mental abuse included data of 48,504 and 48,603 adolescents respectively.

- Results, paragraph 3: “Also, obese adolescents were about four and three times more likely to be respectively physically or mentally abused compared to their normal weight peers. However, though still significant, the multivariable model showed considerable smaller ORs for these associations (respectively 1.50 and 1.79).” This should read 'sexually', not mentally. Please check the manuscript carefully for errors.

This sentence was adapted accordingly.

(Results section, page 8)

Also, obese adolescents were about four times more likely to have been physically abused and three times more likely to have been sexually abused compared to their normal weight peers.

- The authors have removed Model 2 from the paper. Please remove the description of model 2 from the methods and correct references to the multivariable models from plural to singular.

This was adapted accordingly throughout the paper.

- Abstract, methods section, second sentence: Remove brackets around BMI.
- Background, paragraph 1: Although there are different subtypes of abuse, among which physical, sexual and mental abuse, … . This sentence needs an extra word
- Methods, abuse paragraph :” (1422 did not answer the physical abuse question, these percentages were 1669 and 1622 for the sexual and mental abuse question” – replace the word ‘percentages’ with ‘numbers’
With respect to these three comments by the reviewer, we changed these sentences as was suggested by the reviewer.

- The authors rebuttal describes the rationale for describing analyses as univariate and multivariate. I think it would be clearer to describe them as unadjusted and adjusted, as their ‘independent predictors’ are considered confounders, however acknowledge it is the authors preference.

In agreement with the reviewer, we changed ‘univariable’ into ‘crude’, and ‘multivariable’ into ‘adjusted’ throughout the paper.

- I am still unsure of the rationale for adding additional types of abuse into the multivariable analysis and think it would benefit from a brief sentence about this (i.e. if it is protective or additional risk).

Since being a victim of multiple forms of abuse was more common among overweight and obese individuals compared to normal weight adolescents, we wanted to be sure to exclude this effect from the regressions analysis. By doing so we are sure that the results describe the association between BMI status and every single type of abuse.

We adapted one sentence in the method section to make this reasoning clearer.

(Method section, page 7)

To examine the associations between every subtype of abuse and BMI status separately, three General Estimation Equation (GEE) analyses were performed.

- Results, paragraph 2: “Being a victim of multiple forms of abuse was significantly more common among obese adolescents (n=50) then among their normal weight peers” Could you report the % of obese and % of normal weight reporting this so we can compare how common it is in either group?

We have added the percentages to this sentence.

(Results section, page 8)
Being a victim of multiple forms of abuse was significantly more common among obese adolescents (51%) than among their normal weight peers (23%).

- Figure % for normal weight, which was in the previous version of the paper figure have now been removed – I think it would be clearer to show all 4 BMI status categories

We have added this category to the figure, this now contains 4 categories (underweight, normal weight, overweight, obese)