Author's response to reviews

Title: Tracking of eating patterns and overweight - a follow-up study of Norwegian school children from middle childhood to early adolescence

Authors:

Inger M Oellingrath Dr (inger.m.oellingrath@hit.no)
Martin V Svendsen MSc (martin.svendsen@sthf.no)
Anne Lise Brantsaeter Dr (anne.lise.brantsaeter@fhi.no)

Version: 2 Date: 1 September 2011

Author's response to reviews: see over
Dear Nutrition Journal Editorial Team

Thank you for the opportunity to revise our manuscript. We are pleased that the referees found our article interesting and of importance to its field. They provided detailed and useful comments which we believe have improved our manuscript substantially. We have addressed their points below and revised the manuscript accordingly.

**Answers to reviewer # 1 (Valeria Hirschler)**

The question posed by the authors was not well defined “The aim of the study was to describe eating patterns in early adolescence, to track eating patterns from middle childhood to early adolescence and to examine the longitudinal relationship between changes in eating patterns and overweight” I suggest “The aim of the study was a) to describe eating patterns in early adolescence and b) to determine the longitudinal association between eating patterns from middle childhood to early adolescence.”

*Answer: We have revised according to your suggestion. However, as we focus on overweight, we included “overweight” in part b) of the aim and removed “longitudinal” because the study include both a cross sectional and a longitudinal analysis of eating patterns and overweight: “The aim of the study was a) to describe eating patterns in early adolescence and b) to determine the association between eating patterns and overweight from middle childhood to early adolescence.”*

**Tables:**

Table should be improved. There are too many tables and too much information. Tables are difficult to understand. Significant results should be highlighted or otherwise non significant results should be removed.

*Answer: In order to reduce the volume of information we have omitted Table 3 and report the results in the text only. This was also suggested by referee 2 (point 5). Furthermore, we highlighted significant results and revised some of the table legends and believe this has made the tables more understandable.*

**Results**

This sentence should be removed because results were not significant. As the association was not significant, this statement was not accurate: “The data suggested that children faced a higher risk of staying overweight if they had increased “snacking” and “dieting” pattern scores, but the results did not reach statistical significance.”

*Answer: We have removed this sentence.*

Table 6 should be removed too, and significant results should be only described in the text.

*Answer: We consider this table important even if results were only statistically significant for changes in the “Varied Norwegian” eating pattern. It would be difficult to convey all the null-findings in the text.*
Discussion
The reference (Tables) should be removed from the discussion section 2nd paragraph:
Answer: This has been removed.

These sentences should be moved to the method section:
“The four eating patterns identified for these children in the 4th grade [3] were: a “snacking” pattern, characterised by snack items and sugar-sweetened drinks, low intake of water, vegetables and brown bread and a low frequency of eating breakfast and dinner; a pattern labelled “junk/convenient”, characterised by high-fat and high-sugar processed fast foods; a “varied Norwegian” pattern, characterised by food items typical of a traditional Norwegian diet, close to what is recommended by the health authorities; and, finally, a “dieting” pattern, containing foods and drinks often associated with dieting and weight control. The main composition of these four eating patterns (high-loading items) was maintained in the 7th grade. The extraction order and explained variance of the eating patterns indicated some changes in the overall diet.”
Answer: These sentences were moved to the methods section as suggested, with the exception of the two last sentences, which were moved to the result section.

These sentences should be moved to the results section:
“The “unhealthy”, “junk/convenient” pattern and the “recommended/healthy”, “varied Norwegian” pattern accounted for the largest variations in overall diet in the 7th grade. The names or ‘labels’ that were used to describe the patterns in the 4th grade were highly appropriate to the patterns extracted in the 7th grade, and seemed to describe the composition of the 7th-grade patterns even better than the composition of the 4th grade patterns (Table 1). The “varied Norwegian” pattern was more prominent at the 7th-grade stage, as it explained a larger proportion of the variance in intake frequencies and included a larger variety of foods, drinks and main meals.”
Answer: Yes, we removed the sentences and edited what was already written related to this in the results section.

This paragraph should be removed as the regression analysis showed no significant results:
“Dieting behaviour has been associated with overweight in adolescence in a number of studies [46]. Parental restriction of food intake has been suggested as a possible risk factor for weight gain in children [47]. Our results indicated that adherence to a “dieting” pattern over time increased rather than decreased the likelihood of remaining overweight. The positive association between overweight and high scores for the “dieting” pattern may be explained by a higher parental focus on dieting and weight control in overweight children. Many so-called “light” products or typical dieting products are intended as substitutes for food items with a high fat or sugar content. Our results suggest that, rather than encouraging weight control mainly through the increased use of fat- and sugar-reduced food products, parents should strive to include more unrefined plant foods, fish, water, and regular meals in their family diet.”
Authors assumed that there were associations between variables even if the relationships were not significant and affect the validity of the work. Therefore, authors should modified these statements.
Answer: Thank you, we edited and modified this statements rather than completely removing the whole paragraph. See page 18.
Answers to reviewer # 2 (Elisabeth Kvaavik)

Major Compulsory Revisions:
Statistical analysis (should be changed to Statistical analyses)
Answer: We changed from Statistical analysis to Statistical analyses.

1) Fourth paragraph: Please argue in favour for using Cohen’s kappa (#) instead of percent agreement in the tracking analyses. Percent agreement might be as appropriate to use as # as # is considered a particularly conservative measure of agreement.
Answer: We decided to use Cohen’s kappa in the tracking analyses related to the eating patterns because this was used in the studies most relevant for comparison, e.g. Northstone (Reference 15) and Patterson (Reference 6). We agree that percent agreement might be just as appropriate. We are writing a separate paper about BMI and predictors of BMI change and will present percent agreement for weight status in that paper.

2) Fifth and sixth paragraphs: Logistic and linear regression has been used to examine association between eating patterns and body weight. Linear regression is used to examine changes in eating patterns as dependent upon changes in BMI categories between baseline and follow up, while in the logistic regression overweight was included as the dependent variable. It might be appropriate to use different approaches to examine the associations between eating patterns and overweight, but it is difficult to see the unique contributions of the different approaches used herein, and therefore a rationale or explanation for why the different approaches has been used should be added.

The third aim of the study; to examine the longitudinal relationship between changes in eating patterns and overweight, opens for a variety of approaches as it is not very specific, but as it is the long term relation between diet and overweight that is investigated, the cross-sectional analyses presented in table 4 might be omitted from the manuscript.
Answer: Yes, we have used several approaches to examine the aims of this study, which include both a cross-sectional and longitudinal analyses of eating patterns and overweight. We chose the approach that we considered best suited and explained the purpose of each method. We did not try out all available methods and find it difficult to expand the rationale or explanation for why the different approaches were used.
Regarding Table 4 we believe that this table is important for comparison of associations between eating patterns and overweight at the two time points. This table shows that the association between the “Varied Norwegian” pattern and overweight in the 7th grade has changed direction relative to what was seen in the 4th grade.

3) Sixth paragraph: Examining the associations between long term changes in diet and changes in weight is appropriately, but the absolute levels of dietary scores should be taken into account - it is unclear whether this has been done.
Answer: We did also analyse the data based on absolute level of dietary scores, and change in them, but that had no significant impact on the results of the analysis. We have also tried analysing them as categorical variables (based on tertiles). None of these approaches changed the results.

Results
4) Fourth and fifth paragraphs: The way of presenting percent of girls and boys with height and weight measures and becoming overweight, is confusing. For instance; of the 91% 4th graders with height and weight measurements, 50 % were boys and 50 % were girls, but how
does this relate to the 100 % sample? Please find another way to present these numbers making the results more readable.

**Answer:** A new sentence describing the distribution of boys and girls in the 100% sample for both studies is included at the start of paragraph four. The forth paragraph is revised.

5) Sixth paragraph (and Table 3): Table 3 shows the associations between eating patterns scores and potential confounders. The table can very well be omitted from the manuscript as the associations between confounders and variables have been offered too much space in the manuscript.

**Answer:** As also referee 1 and 3 suggested reducing the number of tables we agree that Table 3 can be omitted from the manuscript and the results are included as text only.

**Discussion**

6) Generally, the discussion should be shortened as it is rather long. First, second and partly third paragraph restate the findings – shortening of this reiteration would strengthen the discussion. Also, in the comparison with other studies, the discussion is somewhat detailed, for instance in the middle of third paragraph where tracking of dietary habits is discussed, and could preferably be shortened and sharpened.

**Answer:** We removed parts of the first paragraph and the entire second paragraph. The third paragraph has been revised.

7) Fifth paragraph discuss confounders presented in table 3. As this is not an objective of the study, this section could be omitted or considerably abridged.

**Answer:** We decided to omit this section based on your advice to remove Table 3.

8) In the ninth (second last) paragraph, strengths and weaknesses of the study are discussed, however, they do not appear in a well-organized manner, but rather mixed. They should be presented ordered, for instance with strengths before the weaknesses.

**Answer:** This paragraph has been revised accordingly.

**Minor Essential Revisions**

**Abstract**

9) In the background-section of the abstract one can read “The aim of this study was to track eating patterns from middle childhood (9 to 10 years old) to early adolescence (12 to 13 years old), and to examine the longitudinal relationship between changes in eating patterns and overweight.” The study examines whether the identified eating patterns tracks over time, the aim of the study is not to track the eating patterns. The authors should correct this here and elsewhere in the manuscript.

**Answer:** Yes, we agree that this was confusing. We revised the aim in the abstract to comply with the aim in the background section of the manuscript as suggested by referee 1. See first point raised by referee 1.

10) Please also make clear that the first part of the results is about tracking.

**Answer:** The first part of the results in the abstract was revised as suggested by referee 3.

**Abstract, Results**

11) The first two sentences reads; “Four distinct, comparable eating patterns were identified, at both time points. Correlation coefficients for the factor scores of corresponding eating patterns ranged from 0.44 to 0.60.” It is, however, not completely clear what the first sentence point at with “comparable” – is that comparable to each other at each point in time or to a
corresponding pattern at the other point in time? “Baseline” and “follow up” should be added to the second sentence, to make it clear that the correlation coefficients are for corresponding patterns between the two waves, if that is the case.

Answer: Thank you; these sentences have been revised according to the suggestion by referee 3 and your suggestion. “The same four distinct eating patterns were identified at both time points. Correlation coefficients for the factor scores of corresponding eating patterns at baseline and follow up ranged from 0.44 to 0.60.”

12) The sentence “Children with high “dieting” pattern scores and low “varied Norwegian” pattern scores in the 7th grade had an increased risk of being overweight.” lacks a comparator, please add: “compared to….”.

Answer: We agree that the sentence is incomplete, but due to the word-limitation in the abstract we have not able to include the comparator.

13) It should be mentioned which adjustments that have been done.

Answer: Unfortunately, due to the word-limit, it is not possible to mention the adjustment variables in the abstract.

Background

14) First paragraph, last sentence: the meaning of the sentence is difficult to understand. Please re-write the sentence, especially the last part; “…(PCA), which groups correlated food variables and thereby identifies the underlying dimensions in the data that account for the largest variation in overall diet between individuals [12].”

Answer: The sentence has been rewritten and the last part of the sentence was removed.

15) The second last paragraph of the Background section is not quite clear; does it mean that the associations between dietary factors and overweight was modified (statistical interaction) by parental factors, or that parents of overweight children changed the children’s diet? Please make the sentence unambiguous.

Answer: The intended meaning is that parents of overweight children change the children’s diet. We decided to remove this sentence from the background.

Methods, Subjects and study design

16) Last part of first paragraph, about the sample: The last sentence states that the sample represented about half of the county’s 4th and 7th grade pupils at the respective time points, but the numbers (1045 and 1095, respectively) constitute about 2/3 of the invited pupils, and all 4th and 7th grades pupils in Telemark County were invited. Please correct these numbers or statements.

Answer: We have clarified this statement by adding the information that not all schools were willing to pass out invitations and facilitate data collection. “Of 170 invited schools 70 agreed to participate in the 4th grade data collection and 53 of 104 in the 7th grade data collection”. The reduced number of participants and invited schools at 7th grade are partly due to reorganisation and merging of smaller schools in Telemark during these years.

Methods, Dietary information

17) Third last sentence of the Dietary information section reads; “Meal patterns were registered as the daily frequencies of five main meals (breakfast, lunch, afternoon meal, dinner, supper), with alternatives ranging from “rarely/never” to “daily”.” The number of response alternatives (8?) followed by “response” should be added between “with” and “alternatives”.

Answer: Thank you, this has been corrected.

Methods, Other variables
18) First sentence, first paragraph: “In addition to providing dietary information, the parents answered several questions about their own weight, height, educational level and work situation, and family income.” If the parents answered one question about each variable, the word “several” should be deleted.
Answer: Yes, this has been corrected.

19) Fourth paragraph: More details about the measure of the children’s physical activity level would improve the understanding.
Answer: Yes, we have now added more detail about the children’s physical activity level.

Methods, BMI categories
20) Third line: please insert space between 100 and g, and delete “The” in front of “BMI”.
Answer: Corrected

21) Fourth line: Please change “…the measurements” to “…these measurements.”
Answer: Corrected

22) Seventh line: Please add “years” between 18 and [27-28].
Answer: Corrected

Discussion
23) Eighth paragraph, first sentence refer to one study while the last words of the sentence are “…in a number of studies”. Please delete these words.
Answer: Thank you for pointing this out – we have deleted the words as suggested, but also added one more reference showing such association.

Tables
24) Table 3: The manuscript may improve if this table is omitted.
Answer: We removed Table 3.

25) Table 4: Adding “Cross-sectional” as the first word in the title would make it completely clear what kind of analyses that are presented. Alternatively, the heading of first column can be changed to “Eating pattern in 7th grade (n)”. The total N can be added in the table’s title. The second column can be deleted and the numbers inserted in a parenthesis in the first column, after Tertile 1, Tertile 2 etc. In third column, the percentage should be placed in a parenthesis.
Answer: “Cross-sectional” was added as the first word in the Table title and total n added to the title as suggested. We decided to keep the second column, but placed percentages in the third column in parentheses as suggested.

26) Table 5: Third column should be deleted and the percentages added, in parentheses, to the second column.
Answer: Corrected as suggested.

27) Table 6: Please see under Table 4 above.
Answer: Corrected as suggested.
Discretionary Revisions

Methods, Subjects and study design
28) Last paragraph: The one sentence that constitutes this paragraph (“The research protocol was approved by the Regional Committee for Ethics in Medical Research and the Norwegian Data Inspectorate, and informed written consent was obtained from the parents of all participating children in both 2007 and 2010.”) can profitably be made to two sentences by deleting the word “and” that follows after The Norwegian Data inspectorate, and adding full stop.

Answer: Corrected as suggested.

Methods, Dietary information
29) Second sentence; “The exact same FFQ was used at both time points.” Can profitably be re-phrased to: “Identical FFQs were used at both time points.”

Answer: Corrected.

Methods, Other variables
30) Third paragraph: The word “also” should be deleted.

Answer: Corrected.

Results
31) When referring to the tables, it is not necessary to include “Model x” in the parentheses.

Answer: Corrected. We also removed “Model 1” and “Model 2” from Table 2 and Table 6

Answers to reviewer # 3 (Emma Patterson)

A problem common to papers using factor analysis/PCA is that the factors are identified based on the use of “scree plots, eigenvalues and the interpretability of the components” which involves a good deal of subjectivity and makes the method hard to replicate. This does not mean that it is not a good method, but the reader must be aware of these limitations.

Answer: Thank you, we included this sentence in the discussion.

- Major Compulsory Revisions
As this is a follow-up study, I assume the parents were informed of the weight status of their children at the end of the first study (or perhaps they are informed automatically, perhaps weight status is regularly controlled in the Norwegian school system?). This would surely introduce a big risk of bias in how the parents reported the dietary behaviour in the follow-up study (over and above the usual risk of reporting bias which the authors do mention). What were the objectives of the study as explained to the parents? Were they given feedback on the child’s weight status? How might such a bias affect the results?

Answer: In the letter of invitation that was sent to the parents, the objective of the study was explained as follows: to examine food and meal patterns, physical activity and weight development. The parents did not receive any feedback regarding the child’s weight status in 4th grad. We added this information to the discussion (page 19/20).

I realise that the first study is published but I can’t help wonder at one of the conclusions which is repeated in the background to this study that “the findings indicated parental modification of the diets of overweight children towards inclusion of more healthy food items”. The first study was clearly cross-sectional and therefore impossible to know if diet is modified because of weight status or if weight status results from diet, as was rightfully
acknowledged by the authors in that paper’s discussion. I have read the original study and remain dubious of that particular conclusion. My suggestion therefore would be to remove this sentence which can be justified on the grounds that that particular conclusion is not really relevant to this paper. (A far more relevant result from that paper would be that the “Norwegian” pattern was positively associated with overweight, but which is in direct contrast to this paper!) See also Essential revision > Discussion > Paragraph 5.
Answer: Thank you, we have removed the sentence as suggested.

The extraction of four patterns at time II must naturally have been somewhat influenced by the four patterns found in the first study. Did the authors limit themselves to four in the second, or did they try with three, five etc.? Was the method and criteria for studying the scree plot, choice of eigenvalues etc. absolutely identical at both times? How much was the labelling of them influenced by the labels given to the first study (i.e. might they have been labelled differently if this was the first extraction)?
Answer: This is a relevant question and we did not restrict the analysis to four patterns but looked at all combinations. However, the scree-plot and eigenvalues were convincing. The extraction order and amount variance explained by the factors had changed somewhat, but the labelling was even more appropriate at the second time point that the first. In the revised version we added this statement to the description of the pattern analysis in the Statistical analyses section: “The criteria for choosing the components were identical at both time points.”

- Minor Essential Revisions
Abstract>Background
1) Would suggest you provide the relevant grade after the first instance of age as grades are not universal. A mix of ages and grades are used in the abstract.
Answer: This has been corrected.

Abstract>Methods:
2) Use of both “seventh-grade” and “7th grade” in abstract.
Answer: This has been corrected.

Abstract>Results:
3) “345 children remained normal weight” -> change to “345 children were still of normal weight”
Answer: This has been corrected both in the abstract and throughout the manuscript.

4) “in cross-sectional and longitudinal analyses” -> change to “in either cross-sectional or longitudinal analyses”
Answer: This has been corrected.

5) Would suggest “The same four distinct eating patterns were identified at both time points” (preferred) or even “Four distinct eating patterns were identified at both time points, which were comparable over time”. On first reading it now sounds like four comparable patterns were identified, but that is not what is meant.
Answer: We corrected the sentence in the abstract as suggested: “The same four distinct … “., and also changed the first sentence under the result section to: “Four distinct eating patterns were identified at both time points.”
Methods> Subjects and study design:
6) The authors mention that this sample represents about half of the county’s 4th and 7th grade pupils – but if all the children were invited, and the response rates were 1045/1477 and 1095/1503 isn’t this closer to 70%? Or do they mean that half the counties 4th and 7th grade pupils participated at both time points? Please clarify.
Answer: Sorry for not stating clearly that not all the invited schools wanted to participate in the data collection. This has been clarified. See corresponding answer to referee 2, point 16 above.

Methods> Dietary information:
7) More information is needed about the measurement of the primary exposure. “63 different foods, comprising 39 food items, 11 types of drinks, 13 snacks and five main meals”. 63 foods or 39 foods? Does the 63 refer to the number of questions? How many questions in total? What is the difference between a food and a food item?
Answer: Thank you for clarifying this. The total number of questions was 64 (63 by mistake) of which 40 (not 39) pertained to solid food items, 11 to drinks, 13 to snacks between meals and 5 to main meals. This has been edited and clarified.

Five main meals – is this five questions about main meals or really five main meals. If the latter, breakfast, lunch and dinner are fairly standard main meals but what are the other two?
Answer: The five main meals, which are breakfast, lunch, afternoon meal, dinner and supper, were listed later in the same paragraph. We edited this and included the information in a parenthesis in this sentence.

13 snacks – snack foods or snacking behaviour between meals?
Answer: This question asked for intake of 13 specific snack items between the main meals. The information is now included in the relevant sentence.

8) The authors state that the modified FFQ is appropriate for exploring dietary patterns but has not been validated for estimating energy. Was the original FFQ validated for either purpose? The authors are correct to conclude that the modified one is not suitable for estimating energy, but how can they be sure that it is suitable for the purpose it is used for?
Answer: The original FFQ has not been validated for either energy intake or dietary patterns. It was a short questionnaire only assessing a limited amount of food items. The only changes we made were to add more food and drink items. The reason we assume that the FFQ is suitable for the purpose of the current study is that we study dietary quality (food patterns) based on reported intake frequencies rather than based on calculated food amounts. To the best of our knowledge, the food frequencies employed to identify dietary patterns by PCA in children (for instance references 9 and 15) have not been validated.

Methods> BMI categories
9) It should be clarified here that the obese children were categorised together with the overweight children. This only becomes apparent in the discussion.
Answer: Thank you, the following sentence was added to the Methods/BMI categories: Due to small numbers we included underweight children in the normal weight group and obese children in the overweight group.
Methods> Statistical analysis

10) The scale for food and drink frequencies is explained, as is the one for meal frequencies, but not the scale 1 to 3 for snacking. They are given on a previous paragraph, but either all or none should be repeated here.

Answer: Thank you for pointing out. We included the scale for snacking also.

11) It is good that the authors describe the treatment of missing values. How many questions is 25%, and conversely, what percent is “two questions about meals”? See previous comment about level of detail of the FFQ.

Answer: The sentence has been corrected to include the numbers of questions related to exclusion of respondents: “Respondents were excluded from the analysis if answers were missing for 16 (23%) or more of the questions about food and drink items or if answers were missing for more than two questions (40%) about meals (n=31 and n=68 for the 4th grade and the 7th grade, respectively).”

12) The dependent variable in the logistic regression is described, but not the independent ones, as is done with the description of the linear regression.

Answer: The following sentence was included. “Categorised pattern scores (low, medium and high, based on tertiles) and a dichotomous variable denoting increase/decrease in pattern scores were used as categorical independent variables in the models, respectively.”

13) Why is unchanged included with increased? Couldn’t unchanged just as easily be included with decreased? Should it maybe be a separate category? (Allowing for +/- a small change, for example.) Would the authors like to comment?

Answer: As the pattern scores are continuous and calculated with many decimals, there are no respondents with totally stable score. “Stable” is included in the title to ensure that in such odd occasion those respondents would fall into one of the categories. We have also analysed the data as both continuous and as tertiles, but that did not change the results.

Discussion>Paragraph 2

14) This is the first actual description of the patterns and as such would be far better suited to the results section, where the reader is instead directed to the earlier study.

Answer: This was also a comment from referee 1 and we have revised the first paragraphs of the discussion. Some sentences were moved to the methods section and some to the results. See answer to referee 1.

Discussion>Paragraph 4

15) The first sentence is quite biased. It was expressed more neutrally in the background as “difficult to demonstrate a consistent relationship”. Suggest you use this expression here too.

Answer: The first sentence in paragraph 4 was about tracking of BMI, whereas the expression you refer to from the background refer to the relationship between diet and BMI. The sentence was revised to clarify the meaning.
Discussion>Paragraph 5
16) The discrepancy between the conflicting associations between overweight and the Norwegian pattern in the two studies is rightfully highlighted. The explanation that it is “explained by individual changes in eating habits over the time period studied” feels a little sparse. Please expand. This is a significant issue and deserves more discussion. The conclusions from this study are that a Norwegian pattern (which was not associated with overweight) is desirable, whereas the conclusion from the earlier study where the Norwegian diet was associated with overweight was that the diet modifications were seen. 
Answer: We agree that this change of direction is very interesting, and we have expanded the discussion on this point.

- Discretionary Revisions
Methods> Subjects and study design:
17) “rarely/never” and “never/rarely” are used interchangeably. Unless this is exactly how it was in the FFQ, please use just one. 
Answer: This was exactly how it was in the FFQ.

18) A comment on the fact that the validated physical activity question comes in fact from a different country/population would be appropriate in the methods or discussion. 
Answer: This comment will be taken into account in a different publication where we will focus more on the associations of overweight with physical activity and other variables. However, the description of the activity question has been expanded in response to point 19 from reviewer 2.

Methods> Statistical analysis
19) “The components were named… highest factor loadings within each pattern”. 
Answer: Thanks, we added “within each pattern” as suggested.

20) “Spearman’s rho was used for correlation analysis”. 
Answer: Thanks, we added “analysis” as suggested.

Results
21) In the description of Table 3, the modifier “negatively” or “positively” before “associated with” would ease in the reading. 
Answer: Added as suggested in the edited article text. Table 3 has been removed.

Table 4
22) Listing the patterns in the same order as the previous study would ease comparisons for interested readers. 
Answer: We thoroughly considered which order to list the patterns and decided to use the 7th grade order since the focus in the present paper is more on the 7th grade results.

Figure 1
23) The text in the third box on the left does not match the third box on the right, i.e. the samples in both boxes are not comparable. Is this correct? 
Answer: We are aware of the inconsistency and that the boxes were not comparable. We have now edited the Figure 1 to make the boxes more comparable. We decided to identify eating patterns in the 800 pupils with complete dietary data in the 7th grade (rather than 691 who also had complete height/weight data) because a larger proportion of pupils lack data on weight/height in 7th grade. A main reason was that several schools did not have a public
health nurse available to do the weight/height measurements. We also examined patterns in the 691 pupils who had complete weight/height and dietary data, and the patterns, foods extracted and factor loadings were almost identical as for the 800. However, method validation showed that the results were more robust in the large sample.

- Minor issues not for publication

Methods> Statistical analysis

24) “two times points” -> “two time points”
Answer: Corrected

Results> Paragraph 1
25) “amount of variance”
Answer: We corrected “part of the variance” to “amount of variance”.

Results> Paragraph 4
26) “times points”
Answer: Corrected

We believe that the above changes have improved the manuscript and thank the referees for their valuable comments.

On behalf of the authors,
Anne Lise Brantsæter