Reviewer's report

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

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Reviewer: Valeria Hirschler

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The investigators performed a cross sectional and longitudinal study of more than 1000 children and adolescents in primary school grades 4 (9 to 10 year old) and 7 (12 to 13 years old) from the spring 2007 to the spring of 2010. The aim of the study was to describe eating patterns in early adolescence and to determine the longitudinal association between eating patterns from middle childhood to early adolescence. The children’s food and drink intake was reported by their parents using a retrospective food frequency questionnaire. Principal component analysis was applied to identify eating patterns. The authors found that children with high “dieting” pattern scores and low “varied Norwegian” pattern scores in the 7th grade had an increased risk of being overweight. Children with stable or increased “varied Norwegian” pattern scores had a lower risk of remaining overweight than children with decreased scores for this pattern. Authors did not observe an increased risk of overweight in children with high “unhealthy” eating pattern scores. It is an interesting paper, however I have several concerns that I have described below.

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.”

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.

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

Discussion

The reference (Tables) should be removed from the discussion section

2nd paragraph:
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.”

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.”
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 modify these statements.

**Level of interest:** An article whose findings are important to those with closely related research interests

**Quality of written English:** Acceptable

**Statistical review:** No, the manuscript does not need to be seen by a statistician.

**Declaration of competing interests:**

I declare that I have no competing interests