Reviewer’s report

Title: The mediating effect of dietary patterns on the association between mother’s education level and the physical aggression of five-year-old children: a population-based cohort study

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Reviewer: Elma Izze da Silva Magalhães

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The theme of the manuscript is relevant and original, however the study has some important methodological weaknesses that prevent me from accepting it as presented. My main concern is in relation to the quality of the data provided by the instruments used to measure the outcome and mediator. The authors also need to make a more adequate statistical analysis to assess the association between exposure and outcome and covariates. In addition, more caution is needed in the interpretation and conclusion about the findings of the mediation analysis, since the observed effect was low. Below are detailed comments for each section of the manuscript.

1. Title: It does not make it clear by whom physical aggression is practiced. Only when reading the introduction that it is understood that it is the aggression practiced by the child himself. So, I suggest that the title be reformulated, so as not to confuse the reader;

2. Abstract:
   - In background, the authors focused more on the association of the dietary pattern with the outcome and not in their role how mediator;
   - In methods, to indicate the study design;
   - In the results, the authors presented only p-value. It would be important to include the assessed association and mediation estimates;
   The conclusions is very large. The authors should be more direct and concise;

3. Introduction: The last paragraph of the introduction contains items that should be in the methods (“in a nationally representative sample of 18,513 5-year-old children by applying a parallel multiple mediator model proposed by Hayes”) and discussion (“The results 98 of this study will help understand the impact of different dietary patterns on young children's 99 physical aggression and also aid in the development of effective intervention and prevention 100 strategies targeting physically aggressive preschoolers”) section. Relocate these items to the mentioned sections;

4. Methods
   - The authors did not present the eligibility criteria in "Participants" topic;
- Although the sample is large, I think that the variable maternal education has many categories. This can impact on statistical analysis, leading to spurious results. It would be better to recode it into fewer categories (bringing together categories of nearby education levels);
- Is it not clear which instrument was used to assess children's food consumption? Was a food frequency questionnaire adapted? Has it been validated? The use of an adequate and as accurate instrument as possible is essential for this study, since food consumption is the mediating variable tested in the manuscript;
- The data in Table 1 presented on page 7 should be in the results section;
- Has the instrument used to measure physical aggression been validated? This has to be clear to the reader. A quality instrument to assess the outcome is essential to obtain reliable results in this study;
- Why was the physical aggression variable continuously assessed in scores? Is there no cut-off point for the instrument used? It is important to clarify this;
- The authors mention in the topic "Physical aggression" that the physical aggression assessed was measured at 5 years of age. However, physical aggression at 3 years was also measured, according to the topic "covariates" and tables. Is it really necessary to include the variable at 3 years of age in the analyzes? Please justify it;
- On page 8, line 176, the authors used the term "aggressive behavior" instead of "physical aggression". What does the instrument really measure? If the term can be used, please replace it throughout the manuscript, as I think it is more understandable;
- It was not specified which instrument was used to measure children's mental distress. Was it a validated instrument? The authors need to clarify this;
- Why did the authors perform correlation analysis to assess associations? The correlation is not an ideal analysis for this type of purpose, it just shows how much one variable increases / decreases in relation to another. The authors could have used logistic or linear regression analysis;

5. Results: In Table 2, the authors do not present data on the relative frequency of the variables children's sex and parental marital status, as described in the methods;

6. Discussion: The quality of the instruments used to measure the mediating variable and outcome should be included in the study's limitations;

7. Conclusions: The authors were very pretentious in the study's conclusions, since the mediating effect of the observed eating patterns was low. Therefore, authors need to be more cautious when interpreting results and to make their conclusions.

**Are the methods appropriate and well described?**
If not, please specify what is required in your comments to the authors.

No

**Does the work include the necessary controls?**
If not, please specify which controls are required in your comments to the authors.

Yes
Are the conclusions drawn adequately supported by the data shown?
If not, please explain in your comments to the authors.

No

Are you able to assess any statistics in the manuscript or would you recommend an additional statistical review?
If an additional statistical review is recommended, please specify what aspects require further assessment in your comments to the editors.

I am able to assess the statistics

Quality of written English
Please indicate the quality of language in the manuscript:

Acceptable

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