Reviewer's report

Title: Effect of dietary intervention on serum lignan levels in pregnant women - a controlled trial

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Reviewer: Marianne Prasad

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In this paper Luoto et al. report the effect of a dietary intervention on serum lignan concentrations in pregnant women. This controlled dietary intervention includes 105 first-time pregnant women and was conducted in 3 intervention and 3 control maternity health clinics. The intervention group received individual counselling on diet and physical activity while the control group received conventional care. Serum samples were collected on baseline and at the end of the intervention. In baseline the serum concentrations of enterolactone, enterodiol and the sum of lignans were higher in the control group whereas at the end of the trial they were higher in the intervention group. The authors conclude that the dietary intervention was successful in increasing the intake of lignan-rich foods and fibre consumption, and that this was reflected on the plasma concentrations of lignans in the study women.

Major Compulsory Revisions

1. In general, I find the paper quite clear and mostly well-written. The topic is interesting, and does demonstrate that this intervention resulted in lifestyle changes. There are however, a couple of important points that I would like to bring to the authors’ attention. Firstly, the title of the article is “Effect of dietary intervention on serum lignan levels in pregnant women – a controlled trial”. But if you look at the first chapter of the discussion, the authors go to great lengths to explain the effects of lignans on the offspring rather than focusing on this particular study and its findings. I would suggest that the authors rethink the discussion, and focus on the main points of this particular study and its results, before moving on to the possible health effects on the offspring. Secondly, the discussion lists a number of limitations of the study, but only one strength is mentioned and that too very briefly. Considering the design of the study as well as the results achieved, there would surely be more strengths to report and discuss. As a minor note, self-reported weight may also introduce some bias to the study, which may be worth mentioning.

Minor Essential Revisions

There are some grammatical errors that should be corrected or at least thought about. Below I have listed some examples. In general, suggest putting some more attention to the grammar and the small omissions and spelling mistakes, as overall the text in itself is easy to read and follow, and requires only small
corrections. I have listed below a few suggestions and corrections though this is not a comprehensive list.

1. Abstract: Background: A minor correction to the background suggested. Would suggest either to focus on the dietary intervention and plant lignans and their health benefits, or alternatively try to reorganize the sentences of this part so that they connect. In its current form, the first sentence does not relate to what follows well enough and hangs loose in the air.

2. Abstract: Results:
   - Minor suggestion to the word order in the first sentence to improve clarity: The baseline levels of enterolactone, enterodiol and the sum of lignans were higher in the control group, whereas at the end of the trial their levels were higher in the intervention group.
   - The second sentence should be written more clearly in order to improve clarity.

3. Introduction:
   First chapter:
   - Minor grammatical correction: First sentence: replace “originating” with “that originate”
   - Sentence beginning: “In addition” needs revision or change in word order
   - Sentence beginning: “Many of the ingested” could be written better

   Chapter two:
   - Last sentence in confusing. Please split into two sentences (and add “are” into the last part): They are potentially mediated”.

   Chapter three:
   - Second sentence: change “and no studies” to "there are no studies" and suggest using: INVESTIGATE/STUDY instead of SHOW

4. Methods:

   Setting and study design:
   First chapter:
   - Second sentence: Remove “of the” from in front of the “pregnant women” and “these” from in front of “public maternity clinics”, hence: “Almost all (99.7%) pregnant women attend public maternity clinics”
   - Third sentence needs to be reorganized
   - Last sentence: add “A” in front of “flow chart”

Participants:
First chapter:

- Second sentence: Please change to: Women who were younger THAN (instead of that) 18 years, or suffered … exercising, OR had a problematic pregnancy, a history of substance abuse ….”
- Third sentence: Please change “enrol to” into “enrol for”

Third chapter:

- Remove “to” from in front of the “maintain”: To achieve or maintain

Data collection:

- Last sentence: suggest changing “one month” to “the month before the pregnancy”.
- “the follow-up information on the diet during the previous month” hangs in the air. This should be rewritten so that it is clear to the reader that the follow-up dietary information was based on the mother’s diet during the month before the visit to the nurse etc”.

Statistical methods:

Second chapter:

- First sentence: please change “were reported in the intervention and control groups” into “were reported BY BOTH the intervention and the control groups.
- Please clarify/open the sentence “Before analyses, the transformations of original lignan values to the logarithm at the second measurement were performed due to its skewness of distribution”.

Third chapter:

- First sentence: Please change “affecting” to “that affect”
- Please add “ARE” in: “that affect lignan intake or ARE thought to intervene”

5. Results:

First chapter

- First sentence: Please add “less educated, AND WERE more often smokers”

Second chapter:

- The second sentence beginning “other lignans …..” may need revising or more detail.
- Third sentence: There is a “.” where it should not be. Further, the whole sentence reamins unclear and requires editing, and hence suggest revising. For example: Among the women in the intervention group, THE CONCENTRATION OF almost all SERUM lignans increased during intervention, while AMONG the controls, the SERUM concentrations of lignans other than enterolactone either
did not change or were reduced.
- Last sentence: change in word order: “as a result of the intervention, the levels of lignans in the intervention group increased to a ….”

Third chapter:
- Second sentence: Suggest replacing “… did not change this difference” to “did not affect this result”
- Third sentence: There is a “.” and “)” missing.
- Last sentence: Suggest revising: “The mean difference between baseline and end OF INTERVENTION for the sum of lignans was (GAP!) 1.4 ng/ml ….”

Fourth chapter:
- Last sentence: remove extra gap between “education and were”

Discussion:
Needs reorganization and rewriting as suggested earlier in the Major Compulsory Revisions

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

Quality of written English: Needs some language corrections before being published

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 intertests