Reviewer’s report

Title: Impact of lunch provision on anthropometry, hemoglobin, and micronutrient status of female Cambodian garment workers: exploratory randomized controlled trial

Version: 0 Date: 01 Mar 2019

Reviewer: Research Square

Reviewer's report:

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"STATISTICAL REVIEWER ASSESSMENT:

Is the study design appropriate for the research question (considering whether the analyzed population accurately reflects the design and whether you see any problems with control/comparison groups, e.g., likely confounders)?

No - there are major issues

Are methodologies adequate and well implemented (considering whether assumptions are addressed and whether analyses are robust)?

No - there are minor issues

Are the analyses adequately communicated (considering whether reporting details are adequate and whether figures and tables are well labeled and described)?

No - there are major issues

Does the interpretation accurately reflect the analyses without overstatement (considering whether limitations/bias are acknowledged and whether accurate descriptors, e.g., 'significant', are used)?

No - there are major issues
Could an appropriately REVISED version of this work represent a statistically sound contribution?

Maybe - with major revisions

STATISTICAL REVIEWER COMMENTS:

This is an interesting study but significant revisions are needed before the paper can be considered for publication.

REQUESTED REVISIONS:

1. Regarding the study design, some inclusion and exclusion criterion of this study are puzzling to me: (1). why one of the inclusion criteria should be nulliparous, essentially why did the authors presume that being pregnant before would have confounding effects on the outcome measures (change in BMI, and so on)? (2). why female employees were recruited only; and (3). "<31 years at the date of enrollment" -- what's the rationale behind it?

The authors did mention "(s)ets should provide about one third of the recommended dietary allowance (RDA) for non-pregnant women aged 19-30 years old (total ~700 kcal) [18]."

(p. 6, last para), though. However, not only did "non-pregnant" and "aged 19-30" be brought up AFTER the text regarding the inclusion and exclusion criterion (thus inappropriately), but this raises the concern of selection bias; accordingly, the internal and external validity of this study are doubtful. At a minimum, "female workers" should be explicitly mentioned in the paper title.

2. P. 6, ln 129, "Simple randomization to groups was implemented through the distinct attribution of a bivariate random variable (a/b) for each registered subject …" -- Authors please explain what does "the distinct attribution of a bivariate random variable (a/b) for each registered subject" mean.

3. Based on sample size calculation, 130 subjects in each group should be needed (p. 11). However, in the end there were 86 subjects in each group only. Consequently, the statistical power of the study is low. The authors pointed this out on page 25, though.

4. The authors spent reactively lengthy space (near 3 full pages; I would suggest shortening it substantially) in describing data collection procedure before mentioning outcome measures (comprising one sentence, only). It would be clearer to the reader why the
authors wanted to collect those data described in the sub-section of data collection procedure if they discuss outcome measures first.

5. P. 12, ln 274, "the follow-up was preponed ……” -- "prepone" is a word coined by English speakers in India, but largely unheard outside the country.

6. Originally there were 223 women randomly assigned to one of the two groups in the study, in the end 172 completed the follow-up, 86 for each group EXACTLY, and "(d)ropouts were equally distributed across groups" (p. 13, ln 288) -- Rather amazing to me. A similar seemingly-perfect outcome -- "Almost all study dropouts fell in this period. Yet, they were equally distributed across groups and their sociodemographic characteristics were comparable to those who completed the study (data not shown)." (p. 25, ln 557).

7. Table 2: First of all, the table title is kind of misleading -- "Baseline characteristics of enrolled female Cambodian garment workers by group", considering the contents of the table. The table consists of data for both groups remaining at the end of the trial (86 women for each group), not baseline characteristics of enrolled women at baseline (i.e., 223 women). More important, not only did I feel amazed about the fact that "dropouts were equally distributed across groups", as pointed out in my previous comment, but I am baffled with the observation that all socio-demographic data between the two groups were nearly identical between the two groups, considering the fact that the authors performed random allocation of subjects, not matching.

8. P. 20, ln 430, "Noteworthy, the means in BMI, weight, and TSF, increased in underweight control participants and decreased in control subjects with 432 a BMI ≥20 kg/m2, which might be due to regression to the mean." -- Actually, regression toward to the mean is a source of internal invalidity.

9. It would be better to point out what statistical methods (i.e., GLM) were used in the Methods section of the Abstract.

10. The Results section, Abstract, "Mean folate concentration increased by +1.1 ng/mL (-0.02, 2.2) (p=0.054), representing a marginally significant positive effect." -- The statement is rather misleading since it should be "insignificant", indeed. This comment is applicable to the following declaration as well: "The intervention had a marginally significant small-sized positive impact on mean folate concentration, suggesting that lunch sets provided a relevant amount of dietary folate." (p. 22, ln 529).

Please overwrite this text when adding your comments to the authors.
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.

No

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

No

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