Author’s response to reviews

Title: Factors associated with menstrual cycle irregularity and menopause

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Author’s response to reviews:

Santiago Palacios

Editor, BMC Women’s Health

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Dear Santiago Palacios

We appreciate your e-mail dated December 11, 2017. We would like to re-submit the attached manuscript entitled “Factors associated with menstrual cycle irregularity and menopause” to the BMC Women’s Health.

We have carefully considered all comments from the reviewers, and revised the manuscript accordingly. The changes are highlighted with a yellow pen in the marked copy of the revised manuscript. We are grateful for the reviewers’ insights, as they have led to a better manuscript. Here we would like to specifically address their concerns:
Reviewer #1 Joseph Kwame Walifan:

1. Line 52- Pg 4 - ...... only a few have been performed in Asia, where women have relatively low BMI and smoking prevalence. (Could you cite some of these studies you are referring too?)

Response: We thank the reviewer for his/her valuable suggestion. As the reviewer commented, we have cited the references as follows:

- Page 3, line 23

Thus, previous studies have reported a significant association between lifestyle and menstruation [22-27].


However, while most of these studies on menstruation and menopause have been conducted in western countries [22], only a few have been performed in Asia, where women have relatively low BMI and smoking prevalence [28, 29].


2. Line 63-65 Pg 5- Multistage stratified probability sampling methods (Could you explain how you applied the multistage stratified probability sampling in a sentence?)

Response: We thank the reviewer for his/her constructive suggestion. We have added the explanation about multistage stratified probability sampling of Korea National Health and Nutrition Examination Survey (KNHANES) as follows:

- Page 4, line 11

KNHANES was designed by complex, multistage, probability sampling to be representative of the civilian, non-institutionalized Korea population. In the case of 2011 survey, the sampling was carried out in two stages: i) selecting a sample of 192 primary sampling units (PSUs) in the whole country (approximately 200,000 PSUs); and ii) systematic sampling of 20 households among each PSU that consisted of an average of 60 households. All people in the selected households were eligible for the KNHANES.
Reviewer #2 Tizta Tilahun:

1. Abstract, Method section, it is written as "We used a separate dataset to analyze the risk factors of menstrual cycle irregularity and menopause (pre- and postmenopausal women: n=4788 and 13 918, respectively)." Doesn't have the same connotation as 4788 samples were drawn from 13 918.

Response: We appreciate the reviewer’s correction. We made a mistake to write the number of sample size in the original manuscript. We have corrected the sample size of postmenopausal women from 13 918 to 10 697 as follows:

- Page 1, line 10
We used a separate dataset to analyze the risk factors of menstrual cycle irregularity and menopause (pre- and postmenopausal women: n=4 788 and n=10 697, respectively).

2. Method. The secondhand smoking is well defined, but measuring the people’s exposure to smoke at home or in their workplaces or in the different public places is very difficult.

Response: We thank the reviewer for his/her constructive concern. We totally agree with you. However, KNHANES provided the separate data on the exposure time of secondhand smoking at home and in their workplace. Thus, we had summed up those exposure time to decrease the uncertainty of data. We have added the information on questionnaires about secondhand smoking, and detailed procedure in the revised manuscript as follows:

- Page 5, line 21
Secondhand smoking was assessed using the following self-reported questionnaires: “How many hours a day are you exposed to tobacco smoke at home?” and “How many hours a day are you exposed to tobacco smoke in your workplace?” Then we categorized the total exposure time at home or in their workplaces into 3 groups as follows: no, <1 hour, and ≥1 hour.

3. Measuring the level of stress from the response of respondents, which is not clinically proven. In that case, it is perceived level of stress.
Response: We thank the reviewer for his/her valuable suggestion. As the reviewer commented, we have changed the term ‘stress’ to ‘perceived level of stress’ in the revised manuscript (page 1, line 17; page 6, line 10; page 7, line 5, 20; page 8, line 4, 6, 7, 8; page 9, line 7, 11, 13; page 11, line 2).

4. Results. Explain the logical interpretation of the result: "High educational level was found to have a statistically significant relationship with regular menstruation". Make the same explanations for other findings too.

Response: We thank the reviewer for his/her valuable suggestion. As the reviewer commented, we have deleted the illogical explanations and re-written the certain part of results section in the revised manuscript as follows:

- Page 8, line 5
Following the adjustments of modifiable risk factor scores, perceived stress and educational level were significantly associated with menstrual cycle irregularity. Women who responded their perceived stress as ‘very much’ had 1.74 times higher odds ratio (OR) of menstrual cycle irregularity than women who did as ‘little’. As educational level was lowered, the risk of menstrual cycle irregularity increased (elementary school and below (reference=high school), OR=2.07, 95% CI=1.24-3.46).

- Page 9, line 2
Figure 1 shows the proportions of each menarche age by groups of early (<50 years) and late menopause (≥50 years). There was no difference in the menarche ages of the early and late menopause groups; thus, early menarche age was not a factor to accelerate the early menopause in our subjects (Figure 1).

5. Figures and tables. The last figure - does not have a title- add the title so that the reader can understand the take-home easily.

Response: We had written the figure legend in the original manuscript (page 21). However, as reviewer commented, we have also added the title in the figure file as follows:
- Figure file:

Figure 1. Distributions of menarche age based on the onset of menopausal age before and after the age of 50 years (KNHANES, 2010–2013)

We thank the reviewers for his/her thoughtful suggestions. We hope the revised manuscript is now suitable for publication in your journal. We look forward to your positive reply.

Sincerely yours,

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