

## PEER REVIEW HISTORY

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### ARTICLE DETAILS

<b>TITLE (PROVISIONAL)</b>	Association of tea drinking and dysmenorrhea among reproductive-age women in Shanghai, China (2013-2015): a cross-sectional study
<b>AUTHORS</b>	Zhang, Xiaoyu; Zhang, Rongrong; Chen, Dan; Huang, Rong; Tian, Ying; Zhang, Ping; Zhang, Jun

### VERSION 1 - REVIEW

<b>REVIEWER</b>	Marjan Ahmad Shirvani Mazandaran University of Medical Sciences, Iran
<b>REVIEW RETURNED</b>	17-Oct-2018

<b>GENERAL COMMENTS</b>	<p>This is a descriptive study with an interesting topic about relation between tea drinking and dysmenorrhea. The manuscript has been set in a good way. There are some comments about more details as below:</p> <ul style="list-style-type: none"><li>- Kindly add the year of study and type of dysmenorrhea in the title.</li><li>- Key words: " reproductive age" seems is enough instead of "women reproductive age"</li><li>- Abstract: primary and secondary outcomes need revision. Kindly clearly define the association of tea drinking and dysmenorrhea was the main question. In addition other variables such as demographic and life style factors were assessed. also the type of dysmenorrhea should be defined.</li><li>- Introduction: The definition of dysmenorrhea in the first sentence is related to primary dysmenorrhea, so it should be mentioned.</li><li>- Method: Details about calculation of sample size for this study is need</li><li>- It is not clear which type of dysmenorrhea was assessed in this study, primary or secondary, and how these types were differentiated.</li><li>- Analysis: Kindly add descriptive statistics</li><li>- Table 1: means, SDs and units are not clear for quantitative variables.</li><li>- There is no p-value in table 3.</li><li>- You referenced to table 1 for the average age of the onset of menarche, but it has not been reported in this table. In addition, an explanation is need for what has been reported in table 1.</li><li>- There are not p-values in table 3.</li><li>- Results: Any interpretation should be mentioned in discussion, such as this sentence "... which may be a result of small sample size.</li><li>- Kindly omit statistical values in the text (such as OR), wherever they have been reported in the tables</li><li>- you may present table 5 and 6 as one table</li><li>- Some references are too old (3, 4, 20, 25). They are better to replace with new ones.</li></ul>
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<b>REVIEWER</b>	Cho Lee Wong The Chinese University of Hong Kong
<b>REVIEW RETURNED</b>	12-Dec-2018

<b>GENERAL COMMENTS</b>	<p>Thank you for the opportunity to read manuscript "Association of Tea Drinking and Dysmenorrhea among reproductive-age women in China". This paper is interesting and is an important investigation of association between tea drinking and dysmenorrhea. I have few minor comments for authors' consideration.</p> <p>Introduction</p> <p>1) P.4 Line 7: Provide reference for definition of dysmenorrhea  2) P.4 Line 11: Please add one more reference from {Wong, C. L. (2018). Health-related quality of life among Chinese adolescent girls with dysmenorrhoea. <i>Reproductive Health</i>, 15(1):80.} to support the prevalence of dysmenorrhea varied widely.  3) Please elaborate and detail the significance of conducting this study</p> <p>Menstrual characteristics</p> <p>4) P.6 Line 37: If dysmenorrhea is defined as having pelvic pain during the past 12 months, will there be recall bias?  5) P. 6 Line 39: Any literature to support the definition of mild, moderate and severe pain?</p> <p>Results</p> <p>6) Line 46: Typo "arrcoding"</p> <p>Discussion</p> <p>7) Please provide some discussion on the result related to oolong tea.</p>
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### VERSION 1 – AUTHOR RESPONSE

Reviewer1:

1. Kindly add the year of study and type of dysmenorrhea in the title.

- We are so sorry that we were unable to distinguish secondary dysmenorrhea from primary dysmenorrhea, so it is difficult to specify the type of dysmenorrhea in the study. We acknowledged this deficiency and discussed this issue on Page 15-16: "This study did not distinguish secondary dysmenorrhea from primary dysmenorrhea. However, secondary dysmenorrhea may share some of the same pathways of pain as the primary dysmenorrhea, with an evidence of an increased level of prostaglandin in endometriosis and adenomyosis. On the other hand, an animal study has shown that green tea catechins inhibited the development of endometriosis through anti-angiogenic effects. Thus, it is possible that green tea may potentially be beneficial to both primary and secondary dysmenorrhea".

The title has been changed to "Association of Tea Drinking and Dysmenorrhea among reproductive-age women in Shanghai, China (2013-2015): a cross-sectional study"

2. Key words: " reproductive age" seems is enough instead of "women reproductive age"

- The change has been made accordingly.

3. Abstract: primary and secondary outcomes need revision. Kindly clearly define the association of tea drinking and dysmenorrhea was the main question. In addition other variables such as demographic and life style factors were assessed. also the type of dysmenorrhea should be defined.

- We have now revised the primary and secondary outcomes in the abstract, as follows: "Participants were asked if they had pelvic pain associated with menstrual bleeding during the past 12 months and further grade the intensity of menstrual cramp as mild, moderate and severe. Multinomial logistic regression was performed to assess the association of tea drinking and dysmenorrhea. Other information such as demographic and lifestyle factors were also collected and assessed in relation to dysmenorrhea."

- In addition, we were unable to distinguish secondary dysmenorrhea from primary dysmenorrhea. Please see our answer above.

4. Introduction: The definition of dysmenorrhea in the first sentence is related to primary dysmenorrhea, so it should be mentioned.

- The change has been made by adding the definitions of primary and secondary dysmenorrhea in the Introduction, as follows: "Dysmenorrhea refers to pelvic pain during menstruation and can be classified as primary and secondary. Primary dysmenorrhea begins at or shortly after menarche without any evidence of pathology. Pain usually occurs just before or during menstrual period, lasting for 2-3 days. Secondary dysmenorrhea is caused by specific pathological conditions, such as adenomyosis and fibroids, endometriosis, and pelvic inflammatory disease. The onset of secondary dysmenorrhea begins later than the primary dysmenorrhea, usually more than 2 years after menarche."

5. Method: Details about calculation of sample size for this study is need

- We agree with the reviewer that sample size calculation is important when designing a study. Unfortunately, this is a secondary data analysis using data from the Shanghai Birth Cohort. The sample size is fixed. We, therefore, have tried to calculate the power we have with this sample size. It varied from 0.51 to 0.94, depending on the prevalence of exposure and outcome. Indeed, some categories had a sample size that may not be large enough to detect a small effect. Thus, our findings are considered preliminary and required to be confirmed or refuted in future studies. This is acknowledged in the Discussion (Page 14 and 16).

6. It is not clear which type of dysmenorrhea was assessed in this study, primary or secondary, and how these types were differentiated.

- Please see our answer above.

7. Analysis: Kindly add descriptive statistics

- We have added descriptive statistics on Page 7, as follows: We described the distribution of continuous variables (including mean and standard error) according to the severity of dysmenorrhea, and described the relationship of categorical variables with severity of dysmenorrhea using contingency tables.

8. Table 1: means, SDs and units are not clear for quantitative variables.

- The units have been added for quantitative variables.

9. There is no p-value in table 3.

- Sorry for the mistake, the p-values have been added.

10. You referenced to table 1 for the average age of the onset of menarche, but it has not been reported in this table. In addition, an explanation is need for what has been reported in table 1.

- Sorry for the confusion. We actually did not present average age, BMI and age of onset of menarche in Table 1. Instead, we presented these characteristics according to the severity of dysmenorrhea in Table 1 and described the average numbers in the narrative in the Results. We have deleted the words (Table 1) on Page 9. And we have added explanation for Table 1 on Page 9.

11. There are not p-values in table 3.

- Sorry for the mistake, the p-values have been added.

12. Results: Any interpretation should be mentioned in discussion, such as this sentence "... which may be a result of small sample size.

- The sentences have been deleted from the Results. Instead, the interpretation of weak association between oolong tea and dysmenorrhea was shifted to Discussion part on Page 14.

13. Kindly omit statistical values in the text (such as OR), wherever they have been reported in the tables

- The change has been made accordingly.

14. you may present table 5 and 6 as one table

- The change has been made accordingly on Page 12.

15. Some references are too old (3, 4, 20, 25). They are better to replace with new ones.

- The references have been replaced.

Reviewer: 2

1. P.4 Line 7: Provide reference for definition of dysmenorrhea

- The reference has been added on Page 4.

2. P.4 Line 11: Please add one more reference from {Wong, C. L. (2018). Health-related quality of life among Chinese adolescent girls with dysmenorrhoea. Reproductive Health, 15(1):80.} to support the prevalence of dysmenorrhea varied widely.

- The reference has been added.

3. Please elaborate and detail the significance of conducting this study

- Epidemiologic evidence on the relationship between tea drinking and dysmenorrhea is still limited and inconsistent. Therefore, more studies like ours are needed to fill in the gap. This study gives new insights in the possible role of green tea on the relief of dysmenorrhea. Our findings may have important clinical and public health significance if they are confirmed by future prospective studies. We have added the significance of the study on Page 16.

4. P.6 Line 37: If dysmenorrhea is defined as having pelvic pain during the past 12 months, will there be recall bias?

- This is an interesting point. It is no doubt that recalling and reporting of dysmenorrhea was subjective, and the reported severity of the symptom was subject to error. However, the study

participants were not informed that we would examine the relationship between tea drinking and dysmenorrhea. Thus, it is probably less likely that women had reported their symptoms based on their tea drinking habit. If this is true, then the error or misclassification was likely to be non-differential, which would draw the results towards the null.

5. P. 6 Line 39: Any literature to support the definition of mild, moderate and severe pain?

- The method grading pain intensity in this study was modified based on verbal rating scale - a validated pain scale to evaluate dysmenorrhea. And we have added the reference accordingly on Page 7.

6. Line 46: Typo "arrcoding"

-Sorry for the spelling mistake. The change has been made.

7. Please provide some discussion on the result related to oolong tea.

- Discussion with regard to oolong tea has been added on Page 14.

#### **VERSION 2 – REVIEW**

<b>REVIEWER</b>	Cho Lee Wong The Chinese University of Hong Kong
<b>REVIEW RETURNED</b>	29-Jan-2019

<b>GENERAL COMMENTS</b>	Thanks for revising the manuscript "Association of Tea Drinking and Dysmenorrhea among reproductive-age women in China". The authors have satisfactorily addressed my previous comments. Thank you!
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#### **VERSION 2 – AUTHOR RESPONSE**

Reviewer: 2

Thanks for revising the manuscript "Association of Tea Drinking and Dysmenorrhea among reproductive-age women in China". The authors have satisfactorily addressed my previous comments. Thank you!

- Thank you for your approval.