Reviewer’s report

Title: The trend of caesarean birth rate changes in China after ‘universal two-child policy’ era: A population-based study in 2013-2018

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Reviewer: Xiu Qiu

Reviewer's report:

In this manuscript, the authors used nationwide data to evaluate the caesarean section rate from 2011 to 2018 in China and assess the change of the rates after the implementation of the universal two-child policy. Considering the major issues existing in this study, I am hesitating to suggest this manuscript to be published in BMC Medicine.

My major comments are as follow:

1. This study fails to answer whether the universal two-child policy did contribute to the change of the caesarean section rate due to its inappropriate study design and methodology.

2. Representativeness of the study sample is unknown. In 2011 and 2012, the sample size (194,059 and 567,574, respectively) is far smaller than that in 2013-2018. It is necessary to present the proportion of births in this sample to the total births in the country, as well as the region-specific proportions.

3. Findings of this study do not provide new implications for controlling caesarean section rates in the context of the universal two-child policy.

Other comments/suggestions include:

1. Please include the aims of this study in the Background section of Abstract.

2. Please add a brief description of statistical analyses in the Methods section of Abstract.

3. Please clearly specify in Abstract and the Methods section that the present study is a retrospective one.

4. Line 88-90: "In China, the caesarean delivery rate increased dramatically during the past three decades (2-5)." References 2-5 were published between 1990 and 2001, which could not reflect the change "during the past three decades". Please also refer to more recent reports.

5. Line 125-127: "The project was initially set to promote reproductive health of rural habituated couples and gradually expanded to the whole population since 2013." As the proportion of urban participants in this study ranged from 3% to 9% even after the expansion, far lower than the actual
proportion of 53-59% in China, the expression "expanded to the whole population" may not be appropriate here. Please provide more details regarding how this project was expanded. Also, in the Results section, there are still data from urban participants in 2011 and 2012. The authors should explain where these data came from.

6. For the statistical method, the authors could consider using interrupted time series (ITS) analysis with segmented linear regression to evaluate the change of caesarean section rates over time. ITS can be used to evaluate the longitudinal effects of the intervention (e.g. policy). It allows us to assess, in statistical terms, how much an intervention changes the outcome of interest, both immediately and over time, and whether factors other than the intervention can explain the change.

7. Please specify in the Methods section the p-value threshold for statistical significance.

8. When presenting results, it is not necessary to keep two decimal places for percentages. One decimal place would be enough.

9. Please specify what number (caesarean section cases or total participants) "no." represents in Table 2.

10. Fig 2 simply replicates the results in Table 2. I suggest combining Table 2 and Fig 2 to incorporate both tabular and graphic data.

11. Table 2, Fig 2, and Fig 3 only present the data of total births and low-risk births. It would be better if the authors could additionally show the data of other births (i.e. those other than low-risk births).

12. Please include in the Discussion section what new findings/evidence this study adds to the literature, in the context of other similar studies about caesarean section rates in China.

13. The present study shows that the caesarean section rate increased even in low-risk women. It would be better if the authors could expand the Discussion and provide more reasons that could possibly explain this finding.

14. Line 342-343: "Feeling fatigue or physical strength overdraft probably make obstetricians are prone to use caesarean deliveries." This argument seems too arbitrary. Please provide any evidence to support it.

15. Strengths of the present study should be added in the Discussion section.

16. Line 383-384: "China is seemed to be the only country that has succeeded in reversing the rising trends in caesarean deliveries." This is not the conclusion drawn from the present study. Please remove it from the Conclusion section.

17. In academic writing, phrases like "don't" and "didn't" (Line 70, 334, 357, 384) should be avoided and changed into "do not" and "did not".
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

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

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