Reviewer's report

Title: Influence of family size and birth order on risk of cancer: a population-based study

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Reviewer: Yani Lu

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Minor Essential Revisions

1. Page 1. In the abstract section, the Results and the Conclusion parts are not consistent. The authors concluded that their findings suggest that the effect of birth order decreases from early to late adulthood for lung and endometrial cancer. However, none of these results were presented before. The authors may need to revise these parts to make the presentation of the abstract more rigorous and precise.

2. Page 5. In the end of the first paragraph, the author described “To analyze these effects from childhood to adulthood the analysis was stratified for age at diagnosis less and at least 20 years”. Because childhood cancer and adulthood cancer are normally different types of cancers, thus, this kind of analysis does not truly answer the proposed question. I would suggestion the authors reconsider if they need to present the analysis and the results (although not shown) in this manuscript.

3. Page 5. Second paragraph about the codes for cancer sites. I couldn’t find a clue why the authors only presented the codes for several types of cancer but not for others. If the authors can give a complete list of all cancer types studied in this paper that will help the readers to understand the whole picture.

4. Page 7. Paragraph 2, the authors listed the relative risk of thyroid cancer for different birth order. Since the data was not shown, the P for trend may help the readers to further understand the results.

5. Page 7. Paragraph 4, “Smaller family size was negatively associated with stomach cancer…….”. This sentence is confusing regarding bigger family size increase or decrease the risk of stomach cancer. Suggest the author use “Family size was positively associated with stomach cancer…….”.

6. Page 8. The results for Table 5 were presented after the results for the figures, which is easy to make the readers confused after reading the results for the figures. The results for Table 5 should be presented after the results for Table 4 and before Figure 1.

7. Page 8. Again, I would suggest that the authors delete the stratification analysis by age 20. It is not informative in this context.

8. Table 3 and Table 4. For “Squamous cell”, the authors may want to make it clear as “Squamous cell skin cancer”.
9. Figure 1. For all the cancer sites in the figures, the authors used “1” as the reference group except for the stomach cancer. I would suggest presenting the figures consistently and changing the reference group for stomach cancer to be “1” for both birth order and family size.

**Level of interest:** An article of importance in its field

**Quality of written English:** Acceptable

**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 interests