Re-Review report for manuscript entitled “Utilization of antenatal ultrasound scan and implications for the caesarean section: a cross-sectional study in rural Eastern China” submitted to BMC Health Services Research

Thank you very much to give me an opportunity to re-review the revised paper. I have major compulsory revision comments for the authors as follows.

1. Since the main objective of this research is to demonstrate the positive association between uptake of antenatal ultrasound scan and utilization of Caesarean section. Structural equation models (SEM) are not appropriate. The usual approach in the literature is to use reduced form regression (which is referred as “traditional regression model” in the authors’ response to the first reviewer). By such an approach, the analyzer can step-wisely insert independent variables to check whether the association between the dependent variable (CS here) and the main explanatory variable (number of ultrasound scans here) is confounded. I do agree that the strength of SEM comparing to is to show the interplay of different determinants of the dependent variable. But the prerequisite condition for such an approach is that the causal relationship is TRUE. The validity of SEM is not guaranteed if the causal relationships assumed by the SEM are spurious, which is definitely the case in this manuscript as demonstrated in my 3rd comment and the authors' response in the first review. Therefore I strongly suggest the authors to revise their statistical analysis. Since the key explanatory variable is number of ultrasound scans, its distribution merits carefully analysis. The normal approach in the public health literature is to stratify the variable into several groups and report the distribution. Then both the crude and adjusted association between such stratified variables and the dependent variable (CS) should be reported. Normally for statistical reviewers, the step-wise findings are indispensable.

2. The tables merit improvements in several ways.
   (1) Table 1, normally in the public health literature, a stratification of each explanatory variable is performed. The standard deviation is not required but p values for the associations are normally presented.
   (2) Table 2 can be replaced by reporting the associations between CS and various explanatory variables.
   (3) Table 3 can be replaced by a stepwise regression table.
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**Level of interest:** An article of limited interest

**Quality of written English:** Needs some language corrections before being published

**Statistical review:** Yes, and I have assessed the statistics in my report.

**Declaration of competing interests:**

I declare that I have no competing interests