Author's response to reviews

Title: Utilization of antenatal ultrasound scan and implications for caesarean section: a cross-sectional study in rural Eastern China

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Author's response to reviews: see over
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Dear Editor,

We send the revised article “Utilization of antenatal ultrasound scan and implications for caesarean section: a cross-sectional study in rural Eastern China”. We have revised the manuscript according to the third round comments sent by the reviewers on 10 Jan 2012.

We are grateful to the reviewers for the very useful comments. We hope that we have addressed the concerns raised and that we are getting closer to an acceptable manuscript.

Below are the comments (in italics) made by the reviewers and our responses to these comments. All the authors have contributed to the revised manuscript.

Reviewer: Tine Gammeltoft

Reviewer's report:

A quick look, however, suggests that it does look much better now. However, I find that at this point, after several reviews, the final decision must lie with the editor.

Response: Many thanks for the reviewer’s previous constructive comments.
Reviewer: Xing Lin Feng

Reviewer's report:

1. In the introduction section, the authors emphasized too much on the safety and cost issues of antenatal ultrasound examination which are redundant. Antenatal ultrasound scan is just the explanatory variable and the authors provide no evidence in their analysis addressing the comments made here. The key dependent variable addressed in this paper is Caesarean section, therefore I suggest the authors to rewrite the introduction by focusing on the abundant literature reporting rising Caesareans in China.

Response: We have shortened the words on safety and cost issues, added more information about caesarean section and re-organized the introduction section. The current structure is as follows: 1) the first paragraph is to raise the terms of caesarean section and antenatal ultrasound scans; 2) the second, third and forth paragraphs are CS rates around world, especially (rural) China, its health effects on mothers and babies and potential factors related to high CS rate; 3) the fifth to seventh paragraphs of this section are utilization of antenatal ultrasound scans, safety and issues on ultrasound scan during pregnancy; 4) in the eighth paragraph, psychological effects of ultrasound imaging are addressed, which might be a bridge of linkage between CS and antenatal ultrasound scans; 5) in last paragraph, based on the above-mentioned issues, we have described current researches on the relationship of antenatal ultrasound scans and CS, and illustrated why this study is necessary.

Indeed, antenatal ultrasound scan is the explanatory variable in this paper. It is also the key variable which we want to explore its relationship with CS. Emphasis on the safety and cost issues of antenatal ultrasound scan is to describe the potential clinical, socio-economic effects of high maternal use of scans and thus explain why this study is necessary to follow this medical technology with interests, especially in rural China, the areas where limited medical resources need to be carefully allocated and there also exists high rate of another medical intervention: caesarean section.

2. Methods
The first paragraph should be in the acknowledgement.

Response: We have put the source and funding of this study in the acknowledgement and kept the ethical approval in the method.

3. Data analysis
The authors stated that they use self report questionnaires to collect information on “pregnancy complications (including placenta praevia, polyhydramnios, oligohydramnios uterus myoma, ovarian cyst, hypertension, diabetes, hepatitis, nephritis, acute appendicitis, anaemia, intrahepatic cholestasis of pregnancy, blood type incompatibility)”. There are two major comments warrants attention here, firstly, is self report reliable for these professional diagnosis? Secondly, are any of these causes equally related to the indication of Caesareans?

Response: We’re appreciated for the reviewer’s careful consideration. They are also our considerations when we were conducting the study.
As for the first comments (the reliability of self report of pregnancy complications), after completing the questionnaire reviews with women, we had drawn 600 questionnaires from the database, abstracted the information on women’s name, delivery hospital (usually hospital where they had antenatal visits), delivery date, reported pregnancy complications and reported causes of CS and went back to their delivery hospitals to check doctor’s notes. We found that basically, women were aware of their pregnant complications as doctors would exactly tell them if they had any abnormalities. Women themselves were also concerned much about their health during pregnancy when they had antenatal visits. The self-reported complications were in accordance with the notes quite well.

Another objective for this additional note-checking was to examine the real causes for caesarean section. It is exactly related to the second comment the reviewer had presented. We found that the indications of CS in many women with pregnant complications were written as maternal requests. The same indications were also described in some notes of women without complications during pregnancy. This could cause two issues: 1) It was difficult to tell the real reasons underlying maternal requests, as women might ask for CS due to fear of pain, supply-induced demand, worries about safety or true pregnant complications and we could not discriminate the real reason. 2) Many pregnant complications, were relative (nor absolute) indication of CS, and it also made the decision of delivery mode more flexible, whether the decision-makers were doctors or women themselves. It was thus a complicated situation in rural settings and very hard to justify. When we recognized that it was not accurate to use the “indications of CS” only by women’s self report or by medical notes, we just use the decision-makers instead in the result section. And it’s really hard for us to say whether these complications are exactly the indicators of CS. This has been addressed in the Discussion section in the last paragraph of “Association between frequent antenatal ultrasound scans and high use of CS”. We only dare to say that pregnancy complications identified by ultrasound are possibly the indicators of CS.

Furthermore, the pregnant outcomes for the births investigated are not conditioned on in the analysis, which is definitely associated with the use of Caesareans. These issues questions the authors statement that “Having reviewed the key literature and carefully considered the situation in China, the following socio-demographic and clinical variables were selected”.

Response: Thanks for the reviewer’s comments. Pregnant outcomes mentioned in this paper are two parts: previous adverse pregnant outcomes and pregnant outcomes in the index pregnancy (birth outcomes of latest pregnancy in this investigation). In the analysis, we put the previous adverse pregnant outcomes in the model as an explanatory variable. As for the pregnant outcomes in the index birth, we had not put it in the model because we thought that the decision-making of delivery mode happened before women and doctors knew their exact birth outcomes. Although the data analysis was performed after both the events had happened, when considering the factors to choose a CS of that time, an unknown birth outcomes may not be regarded as the reasons.

4. Results

1) Table 1, the numbers reported warrant careful attention. For some of the variables, the authors reported row proportions, for example, maternal age, while for others column proportions (eg. antenatal care) are reported.

Response: We have revised the table in uniform row proportions.
2) Table 1, for women who have 1-2 ultrasound scan, 72.7% of them have “NO” antenatal care, the data is questionable against logic. Should the woman have ultrasound scan without any antenatal care?

Response: The “antenatal care” mentioned here is not the coverage of antenatal care. It refers to antenatal check-up during the 1st trimester of pregnancy plus 4 times during 2nd and 3rd trimesters, i.e., at least 5 antenatal visits during pregnancy. So 72.7% of women who have “no” antenatal care meant they didn’t reach 5 times antenatal visits, but it was possible that they had 2, 3 or 4 visits and had 1-2 ultrasound scan. We have added notes in Table 1, 2 and 3 to make the definition clearer to readers. And according to the comments of proportions in Table 1, we have used uniform row proportions and the proportion is now 52.2%.

3) Table 2, the results are unclear for review due to the absent of base group for several explanatory variables.

Response: We have added the information of base group in Table 2 as well as in Table 3.

4) Table 2, the definition of the key explanatory variables are not clear, particularly “Antenatal ultrasound scans”

Response: Thanks for the reviewer’s consideration. We have made notes to illustrate and restate the definition of key explanatory variables in Table 1, Table 2 and Table 3, mainly on antenatal care and antenatal ultrasound scans, which might be easy to be misinterpreted. Other explanatory variables, for example, previous adverse pregnant outcome, pregnancy complications, preterm delivery and large for date infant are defined in the first paragraph of “data analysis” in the section of Methods and have not been restated in the notes of tables.