Reviewer’s report

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

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Reviewer: Tine Gammeltoft

Reviewer’s report:

This paper addresses a significant global health problem: the overuse of medical technology in liberalized health care systems. The authors explore the use of antenatal ultrasound scanning and caesarean section in a rural area of China, finding 1) high rates of use of both technologies, 2) an association between the use of these two technologies: women with many ultrasounds also tend to have many C-sections.

General comments:

A strength of this paper is the overview of the literature on antenatal ultrasound that it offers (in the background/discussion sections): this review of the literature is very exact, comprehensive, clearly structured and provides the reader with an excellent overview over existing knowledge in this field. Another strength of the paper is that is it written in clear and comprehensible language.

The below comments must all be considered as major compulsory revisions. As I am an anthropologist, I have not assessed the statistics in this report.

The main weakness of the paper is that it fails to provide evidence for the main argument advanced: the authors argue that high rates of ultrasound cause high rates of C-section, yet this is not substantiated by the findings reported. To make this claim, the authors would need to know what events preceded the C-sections: to which extent were they clinically indicated and influenced by ultrasound results? Yes as the paper stands here, we are not offered this kind of information. The authors find (and provide evidence for) an association between ultrasounds and C-sections, but that does not necessarily involve a causal relation. The association could be explained by other things – such as, for instance, the inclination of health care providers in some settings to ‘push’ women to use these technologies (ie, in some medical settings, providers may promote these technologies more intently than in others, in an effort to generate revenue); or by local ‘reproductive cultures’ in which women encourage/inspire each other to embrace reproductive technology. On the basis of the findings presented here, in other words, no firm answers can be provided to the question of how to account for the associations found. This should be acknowledged, and the authors may want to suggest ideas for future research that could look deeper into the factors behind such patterns in technology use.
Specific comments:

Background section:
The authors note that ultrasounds have by now become widely accepted. Yet this is a truth with modifications: the routinization of ultrasound has occurred only in some parts of the world, and particularly in Euro-America and Asia. The authors may want to reflect on this globally patterned use of the technology.

We are informed that the CS rate has increased rapidly in China between 1993 and 2003. It would be interesting to hear more about what has caused this rapid increase? How much of the increase can be attributed to problems identified through ultrasounds and how much must be attributed to other factors? What is the state of knowledge in this field?

Results
The results section is extremely brief (too brief). It would strengthen the article if the authors could provide more findings on the C-sections: who made the decisions to have them (in half of the cases, the decision was made by the women, who made the decisions in the other cases?)? How many were planned and how many were emergency C-sections? What role did ultrasound scanning results play in the decision to undertake a caesarean delivery? What other factors weighed in?

Regarding ultrasounds: the authors describe the demographic factors that impact ultrasound use – but it would be interesting to hear more about what women themselves said about what motivated them to obtain ultrasounds. If the structured questionnaire included such questions, the findings should be included in the results section.

Discussion
Some of the issues brought up in the Discussion section (such as the questions of the benefits/risks of ultrasounds) should be placed in the Background section. The discussion should be focused more directly on the findings of this study: 1) the rates of ultrasound use among different groups of women, 2) the rates of C-section among different groups of women, 3) the possible connections between the use of these two technologies.

Level of interest: An article of importance in its field

Quality of written English: Acceptable

Statistical review: Yes, but I do not feel adequately qualified to assess the statistics.

Declaration of competing interests:
I declare that I have no competing interests