Author's response to reviews

Title: Low coverage and poor quality of postnatal care in rural Hebei, China: a mixed method research

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

We would like to thank you and the reviewers for the comments and suggestions on our manuscript: ‘Coverage, quality of care and barriers of postnatal care in rural Hebei, China: a mixed method study’. We respond to the points below in italic and have attached a revised manuscript with track changes.

Our response to comments by the editor and reviewers is as follows:

Reviewer 1 suggests the changes below:

Abstract

Background: In line 2 the authors state that postnatal care is poor in China, I think this was the research question and should not be stated in abstract even if this study was performed in one part of China only.

Response: To reflect on reviewer’s comment, we now changed the sentence into “However, coverage and quality of postnatal care are poor in low and middle-income countries”.

The aim is … to explore reasons for not receiving care... This is not described in results in the abstract.

Response: Thanks for this comment. We have incorporated the reasons for not receiving care into results of abstract.

Methods: The word “study” is missing after mixed methods...

Response: The first sentence now is written as “We carried out a mixed method study in Zhao County, Hebei Province, China from July to August 2011.”

Results: In this study the response rate is excellent and I think this should be shown in parenthesis after the numbers (90%).

Response: Thanks. We added a parenthesis to reflect the response rate for our quantitative study and now it reads as “Of 1442 (90% of surveyed women) women who completed the postnatal care survey module...”

Conclusion: The first part is the conclusion of the study, whereas the second part describes what the authors think should be done. The authors should stay at the conclusions of the study and not describe clinical implications since this was not the aim of this study to find out.

Response: We appreciate this comment and we deleted the implication from the conclusion.

Manuscript Methods:

This is where I think an effort should be made to describe what was the method for this particular study and not for the whole research project. The criteria for selecting the 1601 participants are not clear. The description of the larger project includes power calculations for outcomes not presented in this paper and should therefore be excluded. A reference to another study from the larger project is enough information here and then the focus should be on the selection, the research process and analysis of this study.

Response: We appreciate reviewer’s comment. The quantitative study was part of the whole...
research project that hasn’t published any paper yet to entail its detailed methodology. Therefore, we are unable to cite another study from the larger project. We thank reviewer’s suggestions and removed how we calculated the sample size and sampling for this study in the Additional file 2. The selection of participants was based on our inclusion/exclusion criteria. To make it clearer, we changed the sentences in our methods part, subheading of “Quantitative study” as “The inclusion criterion of our study was children who were registered as permanent residents. Exclusion criteria were children who were not permanent residents and those who were permanent residents, but currently did not live in the particular village on the name list.”

There is also a description of interviewers different methods for collecting data, by mobile phone or pen and paper. This does not make sense here.
**Response:** To address the reviewers’ comment, we removed the sentence “We validated the use of smartphone data collection in Zhao County; compared with pen-and-paper, using smartphones for data collection eliminates data recording and entry errors, has a similar interrater reliability, and takes an equal amount of time per interview”.

The paragraphs entitled “quantitative study” should be replaced by a description of the mixed methods design used for this paper.
**Response:** We combined the quantitative study and qualitative study into a subsection of mixed method.

Furthermore, I think a presentation of the interview guide should be included.
**Response:** We are now submitting an additional file to present our interview topic guide, please refer to Additional file 3.

Results: The response rate should be presented in percent, as in abstract.
**Response:** We added a parenthesis to reflect the response rate.

The first part is clear. When it comes to the results of the interviews I think this manuscript should benefit from a more “mixed” result section. Rather than presenting the quantitative results first and then the interviews, I suggest a mix of both should be presented so that the quotations and presentations of categories illuminate the findings from the questionnaires. That would be more suitable if it is to be called mixed methods, otherwise it is more like two studies presented in one paper.
**Response:** Thanks. We reframed the entire results section and combined quantitative and qualitative findings as suggested by reviewer.

Discussion: Even if this study has a very good response rate I think something should be said about those who did not respond. Do they differ from respondents in anyway known to the authors?
**Response:** We analyzed the data between respondents and non-respondent. The two groups did not differ significantly in terms of maternal age, annual family income, annual family consumption expenditure and children’s gender. However, more people from non-responder
group were from urban areas, had higher education (high school and above), worked as staff and smaller family size. We reported this in Additional file 4.
Reviewer 2 suggested the changes below:

The manuscript, entitled “Low coverage and poor quality of postnatal care in rural Hebei, China: a mixed method research” estimated the coverage of postnatal care in rural China. More importantly, it also examined barriers to receiving postpartum home visit from the supply side and to seeking postnatal care from the demand side. The authors applied a mixed method approach, providing perspectives from mothers and health care providers using quantitative and qualitative evidence. The study is certainly unique in this aspect.

Response: Thanks for the reviewer’s comment.

However, the current version of the manuscript can probably benefit from additional streamlining and more careful interpretation of the study results.

Specifically, the paper may benefit from a very clear definition of postnatal care up front. Right now, the study implicitly included three different types of postnatal care. They are 1) timely postpartum home visit (within 1 week after delivery), 2) any postpartum home visit, and 3) postnatal care in a health facility within 42 days after delivery. It’s unclear to what degree each type is cost-effective (or do we have sufficient evidence to draw conclusions?) and what their inter-relationship is. That is whether home visit and in facility visit are both needed, or either would be sufficient, or perhaps one is preferred over the other. The quantitative survey clearly collected information on all three types, yet the qualitative study only focused on type 2). Suggest considering only focusing on type 2) in both the quantitative and qualitative results to streamline.

Response: To address the reviewer’s comment, we incorporated the definition of two types of postnatal care: 1) postpartum home visit and 2) postnatal care in a healthcare facility within 42 days after delivery into the methods part. According Recent WHO and UNICEF guidelines, postnatal care visits for mother and newborn on day 1, day 3, and day 7 after birth, with continuing contacts throughout the first six weeks of life were recommended [1]. We agree with the reviewer that it is unclear what the cost-effectiveness of a home visit and facility visit is. WHO/UNICEF guideline, Guidelines of UK National Institute for Health and Clinical Excellence (NICE) and Chinese guideline of basic public health services all recommend postnatal care services from day 1 after birth to the first six weeks of life. Therefore, we collected postnatal care services data through this time period to give an overview of coverage and quality of such services in our study area.

Since our qualitative study served as complementary to the quantitative study, our objective when designing the interviews was to explore the barriers on services that were performed the worst based on our previous household survey in our study area, which was the postnatal home visit. To clarify this, we added an explanation in the method section as “We only focused on exploring barriers on postnatal home visit, because the coverage of home visit was lower compare to facility visits within 42 days.”

In the discussion, the authors seem to suggest that “sitting month” could be a barrier to receiving postnatal home visit. However, this is not supported by the study results. In Figure 1 where all survey mothers were asked about whether willing to receive postnatal home visit, 91% responded positively, suggesting a strong demand for the service and no perception of “sitting month” as the barrier to receiving postnatal home visit. Therefore, for postnatal home visits, the
barriers seem to concentrate on the supply side. Re “sitting month”, it doesn’t appear that the authors have explicitly included it as a reason for not seeking/receiving postnatal care. The association seems to be derived from previous literature. If so, please be explicit in the discussion.

**Response:** Thanks to reviewer for bringing this up and giving this suggestion. We asked women’s willingness of receiving care at home after birth. We did not ask whether they comply with restricting visitors, one of the behavior taboos among “sitting month”. We realize that this point needs to be discussed more clearly and added several lines to discuss the discrepancy between our study with previous study and we clarified that a health worker who was interviewed said “that women still reported that they may not be comfortable with visits from male doctors during the “sitting month” period.”. Please see the discussion on page 16.

For postnatal care in a health facility within 42 days after delivery, since only quantitative data are available, Figure 3 seems to suggest that knowledge, attitude and practice of mothers seeking postnatal care in a health facility need to be improved substantially. In other words, in the lack of supply side information, the barriers to postnatal care in a health facility lie in the demand side.

**Response:** We fully agree with the reviewer that postnatal care in a health facility within 42 days after delivery also needs to be improved substantially. A more thorough study, which is beyond the scope of our study, from both the demand side and supply side is needed to explore how to improve facility service. We added this to the discussion section as a recommendation for future study.

Considering the innovation of the study and the significance of the topic area, with major revision, the manuscript is likely to be publishable at BMC Pregnancy and Childbirth. Please find below additional specific comments/suggestions.

**Major comments/suggestions:**

**Title**
- Suggest reflect the study content on barriers to postnatal care in the title as well

**Response:** Thanks for this suggestion. We changed the title as “Coverage, quality of care and barriers of postnatal care in rural Hebei, China: a mixed method study”.

**Introduction**
- 3rd para, in 1989, the target coverage of post neonatal care was set to be 70%and 50% in urban and rural areas, respectively. What’s the target year to achieve these goals? Is there a specific target for postpartum home visit? Any existing national/local effort to provide postnatal care since 1989? What about in 2009 when the nine basic public health services were launched?

**Response:** There is no target year set for 1989’s requirement and we did not find any specific target set in that requirement for postpartum home visits. We reviewed the policy document of the National Program of Action for Women Development (2001-2011), National Program of Action for Women Development (2011-2020) and Norm of national basic public health services 2009, all of which are policies efforts to reinforce postnatal care. However, we did not find any new goals set since 1989. As mentioned by the reviewer as well as in the background of our manuscript, in 2009 Chinese government launched free antenatal care and postnatal care services
for all urban and rural residents as part of the nine basic public health service. We believe the
government’s initiative was aiming for 100% coverage for both urban and rural residents, but we
did not identify any national representative data before 2009. No matter which target we refer to,
we believe it will unlikely change our conclusions that the coverage and quality of postnatal care
are poor in China.

Method
• “We used mixed methods and combined quantitative and qualitative methods.” This is
redundant as mixed methods refer to methods combining quantitative and qualitative methods.
Response: Thanks. To avoid redundancy and to give a clearer explanation, we rephrased the
sentence as “We used mixed methods and combined quantitative household survey and
qualitative semi-structured interviews.”

• Maybe helpful to repeat at the beginning of the 1st para under study area that the study was
conducted in Zhao County, in Hebei Province, China.
Response: We added detailed study area into the 1st para. Now it reads as “The data in this paper
were generated as part of a broader research project on maternal and child healthcare services in
rural China, Zhao County in Hebei Province, entitled ‘Effectiveness of a scaling-up model for child
health interventions: a cluster randomized control trial’ (unpublished).”

• 2nd para under quantitative study, “the name list of all eligible children under two years in
each village was obtained”. How was the name list generated? Any possibility that the name list
may be missing certain types of children that could potentially introduce bias to the study results?
This concern came up again when the imbalanced sex ratio of children was mentioned (see the
next point).
Response: The name list used in our study does have limitation. In Zhao County, all live births are
reported to the County level Maternal and Child Health Hospital from all qualified delivery
institutions each month, so we obtained the name list from the hospital. Then we sent the name
lists of all selected villages to village doctors and asked them to verify the list by removing
children who had died or moved outside the village and adding children who were living in the
village but not on the list. Although all these efforts were made, we were not sure on the
completeness of the name lists which may have misreporting. Therefore, selection bias may have
influenced the generalizability of our study. We added this point to the limitation part of our
manuscript.

Results
• Sex ratio was reported to be 134:100. Are there particular reasons for such a high sex ratio?
Can this be interpreted as the lack of representativeness due to sampling design or the gender
ratio in Zhao County is in general high, which may have implications for postnatal care of boys vs.
girls?
Response: According to national report in 2011[2], the sex ratio once rose as high as 121:100 in
2008 and then steadily fell to 117:100 in 2011. Also according to another study in 46 rural
counties, the sex ratio was reported to be 127:100 to 146:100 between 1995 to 2005 [3].
Therefore, we think that our finding in Zhao County is similar to other counties in China. We think
the main reason for the high sex ratio may due to the continued imbedded “boy preference” and family planning policy [4]. Admittedly, the sampling frame of name list has its limitations, but we think that this influence is likely to be small. At current stage, we do not feel we have enough evidence to suggest a gender specific implication for postnatal care.

• Unsure whether Figure 1, with majority (91%) being in one category, is worth presenting as a separate graph. Perhaps reporting the results in the text would be sufficient?
Response: We deleted Figure 1 and reported the results in the text instead.

• In table 2 and elsewhere in results, shouldn’t “Postnatal care after 42 days” in fact be “postnatal care within 42 days after delivery”? This goes back to the comment on the definition of postnatal care used in the study. Also within 42 days after delivery, seems in addition to home visit and health facility visit, there is also telephone visit. Do we know enough about the effectiveness and cost-effectiveness of telephone visit? Or perhaps the study should use a definition of any postnatal care visit?
Response: Thanks for this comment. We replaced “postnatal care after 42 days after delivery” to “postnatal care within 42 days after delivery”.

• For readers who are not familiar with the setup of the primary health care system in rural China, it’s perhaps worth explaining the function and staffing of village doctors, maternal and/or child health workers in the introduction or method section early on.
Response: Thanks for this suggestion. Now we incorporated a paragraph to explain the primary health care system in rural China including the function and staffing of village doctors and maternal and/or child healthcare workers.

Discussion
• 3rd para, unclear what “an effective community-based intervention package to improve neonatal survival” is.
Response: The effective community-based intervention package to improve neonatal survival we mentioned in the text was family-community care package including community mobilization and engagement, and antenatal and postnatal domiciliary behavior change communications to promote: evidence-based neonatal care practices (breastfeeding, thermal care, clean cord care), care seeking, and demand for quality clinical care and promotion and practice of clean delivery and referral of complications (for home births) recommended from Lancet neonatal survival series 2 [5]. We thought may be the reference follow this sentence is not clear, so we direct referred the above paper in the text.

• Now that the functions of family planning and MOH are combined administratively at the national level, are there any known or expected implications on postnatal care in terms of work
load allocation between family planning staff, village doctors and MCH workers?

**Response:** We are also interested to see whether the work load allocation between family planning staff, village doctors and MCH workers may have implications on postnatal care after the merger of family planning committee and MOH at central level. However, no policy or study at current stage is available for us to answer that. Thanks for bringing this interesting topic. In the future, we may need to follow it.

Minor edits:
- Please provide page number so it’s easier to refer to a particular part of the manuscript.

**Response:** We added page number. Thanks.

- Additional academic editing could be beneficial.

**Response:** We carefully revised our manuscript and had it proofread before resubmit.

**Background**
- 1st para, it should read “compared to the reduction in the mortality rate of children aged two one months to five years

**Response:** We rephrased the sentence “Between 1980 and 2000, there was a 25% reduction in the neonatal mortality rate. This was smaller compared to the 33% reduction in the mortality rate of children aged two months to five years.” in the first paragraph.

- 3rd para, should the sentence in fact read “In addition, some evidence suggests that HOME (?) postnatal care rates were even lower”?

**Response:** Thanks. We rephrased the sentence as “In addition, some evidence suggests that postnatal home care rates were even lower”.

Reviewer 3 suggest the changes below:

Recently there has been discussion around the confusion of postpartum and postnatal care – with the former more likely attributed to the mother and the latter to the infant. However, often the postnatal period also makes reference to the mother. It is my understanding that this paper intends to focus purely on the child but it is not always that clear – and really the mother –baby dyad should be seen together by health workers (as is the case of the MCH workers). Perhaps a change in the title to reflect that this is purely about the baby would help.

Response: We agree with the reviewer that the term “postpartum” refers to issues pertaining to the mother and “postnatal” refers to those concerning the baby. However, according to the WHO Technical Consultation on Postpartum and Postnatal Care For care after childbirth in 2010, agreement has been reached to adopt just a single term, “postnatal”, to be used for all issues pertaining to the mother and the baby after birth. So we followed this agreement in our manuscript.

We really appreciate reviewer’s thought on changing the title to make our paper more focused on the baby. In our study, though, our intention is to focus both women and their children. We rewrote the background part to clarify our focus.

However it would make the paper stronger if there is also discussion around maternal death (and morbidity) in the introduction after the first paragraph – as well as including some data around the mother’s health and access to PNC and quality of those services.

Response: To address the reviewer’s comment, we now added a paragraph on maternal health.

Clarification around the challenge of the taxonomy on postpartum/postnatal/neonatal would also help. The second paragraph talks about PNC and neonatal survival and is slightly confusing. I recommend reviewing later documents on PNC than the WHO 1998 PNC technical working group - see the 2010 WHO, Technical Consultation on Postpartum and Postnatal Care. Department of Making Pregnancy Safer, 2010as well as the IMPAC guidelines form 2003.

Response: Thanks for mentioning those updated guidelines. We have reviewed the suggested guidelines and updated our postnatal period definition based on 2010 WHO Technical Consultation on Postpartum and Postnatal Care. We also restructured the first four paragraphs in background section to introduce the general definition of postnatal period, child survival during postnatal period, maternal physiological and psychological health during postpartum and importance of postnatal care after we reviewed the suggested guidelines.

3rd paragraph says the MoH China set the targets for 3 PNC visits - for mothers or babies or both? – please check throughout that it is explicitly clear we are talking about the baby only or mother and baby.

Response: The target set by MoH China is for both. To clarify that, we rewrote the sentence as “the Ministry of Health of China set the targets of at least three postnatal care visits for both women and children to be 70% in urban and 50% in rural areas”.

Again in 4th para is this for mothers/babies/both?

Response: We rewrote the sentence in the 4th paragraph as “National policy and guidelines have emphasized at least one postpartum home visit for women and children within one week after
delivery, followed by a facility healthcare visit for women and children within 42 days after delivery” to clarify the target audience.

It would also be good to highlight/summarize the content of the national policy guidelines – to understand the policy environment for both mothers and babies.  
**Response:** Thanks for this suggestions. We incorporated an additional table (please refer to Additional file 1) to summarize the timing, provider and content of postnatal care from the national norm in 2010.

Care for the mother is alluded to in para 4 under the Part II qualitative study....  
**Response:** We are not sure how we should respond to this comment. Is there specific change needed?

Please add a short paragraph describing the cadres/expected to perform PNC -how long their training is and what their training covers and who supervises who – this helps the reader to understand the context.  
**Response:** Thanks for this suggestion. We added a short paragraph to describe the maternal and child health system in China and also the cadres and their responsibilities.

**Methods**

The methods description seems fairly straightforward, however I would expect either additional quantitative data from the providers AND/OR more qualitative data from the mothers to really triangulate /or complement the results. If mothers are willing to be visited at home – were they also asked if they would be willing to go to the facility if they understood the reasons why the newborn (and themselves) should be checked (even though it is within the ‘sitting month’ period)  
**Response:** We really appreciate reviewer’s comment on mentioning more points in the methods. However, we did not collect qualitative data from mothers since our aim is to identify barriers of postnatal care from supply side. We would like to incorporate those comments into our future study.

Please be explicit in 8th line of paragraph under ‘quantitative study’ heading –that you are looking for a 10% point reduction of anemia prevalence in the infant – and not the mother (though this would also be important)  
**Response:** Thanks. To reflect this suggestion, we rewrote the sentence as “We expected to achieve a 10% point reduction of anemia prevalence in infants, and at least a 20% point increase in knowledge and practice of appropriate feeding for caregivers.” And the sample size calculation and sampling is now reported in Additional file 2.

The heading ‘semi structured interviews’ would be better with a heading of ‘ qualitative study’ based on the description in the beginning of the methodology section.  
**Response:** We changed the heading to “qualitative study”.

How are you defining poor quality of care? – need a paragraph on how you set about measuring it against what standards or criteria?
Response: We added a paragraph into the methods section (para 2 in revision manuscript) to define the quality of care.

Results
Regarding the quantitative data - I think some more in-depth analysis could be done. What is presented is very basic descriptive data – without any exploration as to which type of provider discussed which component of postnatal care. Especially if the MCH providers are better (or worse) than the rest. – or whether richer/poorer less /more educated women did or did not seek PNC. Were there any questions on maternal health care? - problems with breastfeeding /bleeding/danger signs/ any uptake of family planning?
Response: Thanks for this suggestion. We added more analysis results into Table 4 and Table 5 to compare the services provided by MCH worker, village doctors and others and to compare women who did or did not seek PNC within 42 days after delivery according to their socioeconomic status. However, we did not collect any data on maternal health care.

What was the content of the care the women received at the clinic within the first 42 days? (but after the first week) it would be interesting to see if the quality of care/or counseling reported is any worse or better than that of the home visits.
Response: Thanks for the comment. Unfortunately, we did not collect information on the content of care for women received at the healthcare facilities within the first 42 days. We believe it is of great importance and that future study is needed. So we added this point to the discussion to suggest future study.

Table 2 indicates 24% women received any PNC AFTER 42 days but the text in para 2 of the results section says WITHIN 42 days, please clarify.
Response: Thanks. We replaced “postnatal care after 42 days” in Table 2 (Now Table 3 in revised manuscript) to “postnatal care within 42”.

Part II qualitative study for postnatal home visit.
Heading for third paragraph - there is no mention of any ‘quality of care’ – just the challenge of poor or no coordination between MCH workers and village doctors. I would like to see more information on this issue.
Response: To reflect on the third and first reviewer’s comments, we restructured the results part by combining qualitative research and quantitative research. So for the quality of care section, we used qualitative research to report the percentage of six postnatal services and quantitative research results to show the reported services items by MCH workers.

Apart from the next paragraph – is there any more information on the quality of care? Need a paragraph or two on the findings for this – if you intend to keep the current title: How are you measuring quality of care? This really needs a description earlier on.
Response: To our knowledge, there is no consensus on indicators for measuring quality of postnatal care. So in our study, we just operationally select five neonatal care procedures that recommended by Newborn Indicators Technical Working Group to reflect the quality of care and one service of checking the jaundice. And we agree that more information and measurement on
quality of postnatal care are needed.

Barriers to postnatal home visits - to whom? Consider revising the title to ‘barriers for MCH workers conducting postnatal home visits’

**Response:** We changed the title to “Barriers for MCH workers to conduct postnatal home visits”.

As part of the larger project - was there any policy analysis done regarding how the free PNC was initiated in Hebei Province? The findings would not be remarkable if nothing had actually happened.

**Response:** Yes. Before we initiated the large project, we visited Zhao County, Hebei Province to assess the implementation of free basic public health services including postnatal care through interview leaders at local health bureau and maternal and child healthcare hospital in March 2011. Our initial assessment showed that the Shijiazhuang city health bureau (superior government organization to Zhao County) issued two implementation documents on maternal health care services and child health care services in 2009. And in 2010 before our survey, on-job training for seven days was conducted to all township maternal healthcare and child healthcare workers on free basic public health services.

Discussion

Q19 The discussion should follow the same order as the results.

**Response:** To address the reviewer’s comment, we rearranged the order of discussion section.

Require more discussion on the transport barriers an important barrier that gets lost in the fifth paragraph.

**Response:** We added a short discussion “And the transportation barriers encountered by township level MCH workers can also be resolved by relying on village doctors to visit women and children at home during postnatal period.” in paragraph 6.

Q20 More should be discussed around the poor quality of care and what that means. The text does not include sufficient to match the title

**Response:** We extended our discussion around poor quality of care by including another similar study. Since we only assessed the quality of care through neonatal care visits, we also discussed this in our limitation.

Q21 Para 5 – some of this information would be helpful in the background to set the context

**Response:** We have used some information here to for a paragraph of introduction on Chinese maternal and child health system in the background section.

Q22 One paragraph on recommendations before the conclusion: –the conclusion seems to be a summary of everything –this should have one key message that is linked to the title.

**Response:** Thanks. We added a recommendation paragraph.

**References**


