Author’s response to reviews

Title: Modeling the relationship between women's perceptions and future intention to use institutional maternity care in the Western Highlands of Guatemala

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Version: 1 Date: 24 Aug 2017

Author’s response to reviews:

REVIEWER 1

Background

1.) Throughout this section, I would make sure to clarify that you are discussing women's perceptions of their childbirth experiences and quality of care. Referencing just "client experiences" and "poor quality of care" is a bit vague.

This was clarified throughout the background section.

2.) In the first paragraph of the Background section, I find the first and third sentences (page 4, lines 2-5 and 7-12) to be unclear. Are you referencing global statistics and trends, or ones that are specific to Latin America?

The reference was to global statistics and trends; this was clarified in the text.

3.) In the second paragraph of the Background section, can you specify what you mean with client beliefs (page 4, line 29)? I think the term is a bit vague.
“Client beliefs” refers to the socio-cultural beliefs related to childbirth practices held by women and their families. This was clarified in the text.

4.) I believe the typology of disrespect and abuse created by Bowser and Hill only has seven categories, whereas this paper lists eight. According to Bowser and Hill, "lack of privacy" is conceptualized as an aspect of non-confidential care. Also, instead of "unfair requests for payment," Bowser and Hill include "detention in facilities." I would include another citation to account for including unfair requests for payment separately, if you are going to include it.

The reviewer is correct. A subsequent paper expanded detention in facilities to a more inclusive term, “unfair requests for payment.” This was more useful in the context of Guatemala as detention in facilities for failure to pay is less common. This point was clarified and the citation was included in text.

5.) Citations would be useful for the two statements on page 5, lines 29-34.

Citations are updated and text clarified.

Setting

1.) I believe this section and the paper as a whole would benefit from the inclusion of a brief summary that provides more information about the health system and health centers. For example, are maternal health services free? Are there ambulance services to help women arrive at the hospital? Who are the health providers at the facilities - i.e, are they doctors, midwives, medical students, etc? Do the study sites have high or low rates of antenatal care utilization? Are there systems and policies in place to insure intercultural care? More information about the services would be very useful to contextualize the findings about women's perceptions.
The setting section now includes two new paragraphs on historical marginalization of indigenous populations, the health system, along with policies related to intercultural care. Additionally, more detail on ANC and birth attendants are added. (See pages 7-8)

2.) Similar to the previous comment, I think it would be helpful to include a sentence that provides a bit more information about home births. If there is information about whether home births are assisted by traditional birth attendants or family members, for example, the addition of that data would also help contextualize perceptions.

Comadronas (TBAs) provide the majority of home births. This was clarified in the text.

3.) You mention briefly that indigenous populations in Guatemala have been historically marginalized. I think it could be useful to provide a bit more information about that, as marginalization and structural discrimination could influence interactions with the health system.

This is found within two new paragraphs on historical marginalization of indigenous populations, the health system, along with policies related to intercultural care.

4.) Is cohort the correct term for referring to the two study groups? This does not seem like a longitudinal study.

The term cohort was replaced with “group” throughout.

Measures

1.) For the independent variable "health facility access," how did you define proximity?

Proximity of villages (e.g. proximate, intermediate, and remote) were determined by the local study team based on their experience traveling to villages within the three municipalities. In
very rough terms, the proximate villages were about 10-15 minute vehicle ride from the municipal centers, the intermediate villages about 30 minutes and the remote villages were up to an hour plus ride by car with some villages lacking vehicle access (and in one case electricity). This information is now included in an endnote and updated in the text.

2.) Regarding the "perceptions of quality of care during last birth" (pages 11-12), I am curious about how you chose the disrespect and abuse items for questions for the facility and home birth groups. You noted that a more in-depth description will be shared in a separate publication, but can you elaborate a bit more in this publication? In particular, why did you choose to specify questions on non-dignified care, abandonment, and unfair requests for payment, instead of asking about discrimination, which seems like it would be especially relevant for indigenous women? Is there existing evidence suggesting those forms of discrimination are prevalent in the study setting? If you did not assess discrimination because it is already known as a deterrent to care, I would state that directly.

These indicators were chosen based on the literature from Guatemala and thus considered most relevant in the context. Privacy/non-confidential care was omitted and other measures were omitted because some disrespect and abuse questions were viewed as too sensitive and were not included in the survey). Detention in health facilities was not seen as prevalent by the local data collection team so “unfair requests for payment” was used.

We were not aware of a single valid and reliable quantitative measure of discrimination, but since it is a known deterrent to care, indicators of discrimination (being from a remote village, indigenous language (ethnicity) and education) are controlled for in the analyses.

In other analyses we assess if there is a higher likelihood of reporting disrespect and abuse among those who are indigenous, have no education etc. Further, all categories of disrespect and abuse are extensively explored in a qualitative analysis, forthcoming.

3.) In discussing maternal language in the "Controls" section (page 12, line 46-54), how did you code for women who were bilingual? I would imagine that there would be women who speak both Spanish and an indigenous language.
As noted above, the value of this variable is that it really proxies ethnicity and potentially those women most vulnerable to discrimination. Meaning, one could self-identify as indigenous, but not speak an indigenous language, which is potentially protective because they may be perceived as more “ladina” or modern by facility-based health providers. While it is true that someone who reports having an indigenous maternal language may also speak Spanish, it would be hard to validly assess bilingualism through self-report question.

Analysis Strategy

1.) Can you discuss more about how you analyzed and used qualitative findings? It might be useful to state directly when thematic analysis was conducted. Were results of the qualitative analysis used to construct variables for quantitative analysis or to explain the results of quantitative analysis or both? Additionally, findings from the qualitative analysis seem to be scattered throughout various sections of the paper, which is a bit confusing. While you mention at the end of the paper that there is a separate analysis of qualitative findings which is not shown, it still might be useful to state that these findings will be mentioned throughout the paper or maybe create a new subsection in the "Results" section that briefly describes qualitative results.

Discussion

1.) On page 22 lines 29-34, it is stated that "well-known" factors associated with uptake of services were included in the models, but it is unclear to which factors that comment is referring. I suggest emphasizing which are already known factors earlier in the paper.

They are now referred to as “key factors” factors are noted at the beginning of the paper related to the conceptual model:

“Building on this frame, the literature identifies key factors associated with where women give birth. These include socio-cultural factors [10] [18] [19]; geographic and economic access [10] [18] [19]; perceived need for facility-based delivery care [10]; previous childbirth experience [18]; and perceived quality of care in health institutions [18] [19].”
2.) Additionally at the end of the paragraph on page 22 (line 49-56), you mention that it would be useful to ask about whether women's birth position preferences were respected. I might mention that some researchers argue that not respecting participants preferences and traditions is a form of mistreatment itself.

Agreed. The lack of respectful practices and the presence of negative incidents constitute mistreatment. I made a small insertion to this point.

3.) A citation is needed on page 23, lines 1-4.

The citations are added and text updated.

4.) In addition to courtesy bias, I would discuss the possibility of recall bias.

This is updated in the text.

5.) You mention this briefly, but it could be useful to discuss a bit more about the possibility of low expectations for care and normalization of disrespect and abuse, which could be limitations to study results.

The following was included in the limitations/discussion section. The normalization of disrespect and abuse combined with low expectations and relatively less experience with institutional childbirth care may have contributed to “under-reporting” of disrespect and abuse. This should be partially adjusted by the inclusion of education/literacy and wealth; moreover, we are concerned with subjective reports of women’s experiences as they are what drive care-seeking (as opposed to “objective” measures of disrespect and abuse or satisfaction). This was explored more extensively in another paper (forthcoming) on factors associated with reporting or perceiving disrespect and abuse.

Conclusions
1.) Overall, I think this section could be expanded, as the results identify various areas where more research is needed and where programmatic or policy initiatives might work to improve respectful care.

The conclusion was expanded to include measurement and policy and practice implications.

2.) Also, you could discuss more about the utility of the instrument for future studies.

This is included in the conclusion.

REVIEWER 2

Quality of English/Terms

- The manuscript would benefit from editing for clarity. Some examples of sentences that should be rewritten are: "Increasing utilization of EmOC relies on understanding why uptake of services is low" (p. 4), "The analysis draws on quantitative and qualitative community-based survey data from the Western Highlands of Guatemala to conduct two separate analyses" (p. 5).

The manuscript was edited for clarity.

- Instead of using the concept of "evaluation" of care by study participants, I suggest to use a different term, given that "evaluation" usually implies a systematic or formal process that does not seem to apply to your study participants.

This was modified and perceived quality of care was used when appropriate.
- It is not clear nor specific to write "developing country context." If you refer to low income
  countries according to the World Bank definitions, please say so. Otherwise, please explain.

  This was changed to Ethiopia and Bangladesh, the specific contexts in which the relevant studies
  cited were undertaken.

- Please use the active voice. The use of the passive voice does not allow to identify who did
  what. For example, when you write in p. 9 "A census and accompanying household survey were
  conducted in 15 villages in Ixil", it is not clear if the authors were involved in the survey.

  The text was revised reflect active voice and references to who did what are included in the
  methods section to enhance clarity.

- Your use of "client" to refer to study participants is not justified. Why are they clients and
  of whom, particularly when referring to women who gave birth at home? How about if you refer
  to them as women or study participants?

  Clients was removed from the text (and largely replaced with women) except for two instances: a
  general reference to “client feedback” and in the key words.

- In p. 8 you wrote "non-indigenous populations (referred to as ladinos)", but in Guatemala
  there are other ethnic groups in addition to indigenous and ladinos.

  No Garifunas or Xinkas were found in the study villages. Similar to the rest of the Western
  Highlands, the study population was landina or from one of three Mayan groups: Ixil, some
  K’iche, and minority Kanjobal (noted in the description of indigenous maternal languages listed
  in the text).

- Please define "remote" (p. 9).
As discussed in a response to reviewer 1, proximity of villages (e.g. proximate, intermediate, and remote) were determined by the local study team based on their experience traveling to villages within the three municipalities. In very rough terms, the proximate villages were about 10-15 minute vehicle ride from the municipal centers, the intermediate villages about 30 minutes and the remote villages were up to an hour plus ride by car with some villages lacking vehicle access (and in one case electricity). This information is now included in an endnote and updated in the text.

Structure

- Please follow the structure outlined by the journal. There are several subheadings that should be merged with other sections or that are out of order.

This is corrected.

Conceptual Framework

- You mention in p. 7 that "A conceptual model was developed to underpin the analysis and guide interpretation of results." But a conceptual framework is also the basis to develop the study methodology. Therefore, your conceptual framework should appear before your methods and should help justify, for example, how you have established the key independent variables that you list in p. 6. Without a justification, your key independent variables seem random or superficial.

This was moved up as suggested.

- The conceptual framework should also include the "structural and cultural factors" that you mention in p. 6.
The examples of the cultural and structural factors are now included in the text description.

- In p 7, when you say "And finally, since intention is the outcome of interest, the conceptual model is influenced by the theory of reasoned action and theory of planned behavior [19]…", please make it more clear that you have used this theory to build your framework.

The conceptual model is concordant with the theory of reasoned action and theory of planned behavior. This is updated in the text.

- In p. 7, you mention that Figure 1 is "… operationalized by variables from the dataset". This is very confusing. Do you mean that you used the study data to develop your conceptual framework, when it should have been the opposite?

This is clarified in the text and now reads: “Figure 1 illustrates the Conceptual Model of Future Intention to Deliver in a Facility, including the variables from the dataset used to operationalize the conceptual model. Starting on the left-hand side of the figure, intention to use facility-based care is formed by structural and cultural factors, and individual characteristics; these shape perceived need for institutional childbirth, perceptions of maternity care quality, and access to skilled care. The conceptual model was developed in advance of data analysis and reflects the authors’ hypothesis that the combination of these factors contributes to future intention to deliver in a health facility.”

- In p. 7, when you say "The combination of these factors contributes to future intention to deliver in a health facility", if this your hypothesis or are you anticipating your findings?

This was our hypothesis, see revised text referenced above.

Methodology
- In the background paragraph of the "Plain English Summary", you seem to take for granted the hypothesis that you test in your study, which is confusing.

This was re-worked and clarified.

- In your "Methods" section you need to add your methods for data collection and they should go before explaining the methods for data analysis.

The setting and data collection sections were moved ahead of discussion of data analysis.

- When you refer to your two groups of study participants, your use of "cohorts" is confusing because it implies that you're following them over time, which you do not mention in your manuscript.

The term home birth group and facility birth groups is now used instead of cohort.

- In p. 8, the first two sentences of the first paragraph belong to the methods section. Please rephrase the third sentence so that it does not seem like interpretation of findings.

This was moved to the methods section.

- You have studied women who gave birth within the last five years. Have you considered taking into account any recall bias by comparing women who gave birth in the past few months to others?

This is a good idea, but due to the small sample and limited number of cases, this would not be possible in this case.
In p. 9, you mention that women completed questionnaires. Please provide more information about the questionnaires. In which language or languages were they written? Anyone administered them or where women asked to complete them on their own? How did you manage potential bias if women had to complete them on their own?

This is clarified in the enhanced description of data collection. The questionnaires were orally administered at the household in either Ixil or Spanish, depending on respondent preference. Answers were recorded in Spanish.

In p. 9, when you mention "524 observations," what do you mean by observations? If you refer to questionnaires, please say so. Observations require a different methodology.

This was changed to: The final analytic sample for the home birth group was 524 and 130 for the facility birth group.

In p. 10, "Open-ended survey responses followed quantitative questions related to client perceptions" should go in the methods section.

This was moved to the methods section, which now has a portion devoted just to qualitative methods.

Sources

In page 4, when you write "Those at highest risk of not receiving adequate care are the geographically isolated, rural poor, residing in certain low- and middle income countries [2]," you are not being specific to Latin America. I suggest this reference for Latin America http://www.apromiserenewedamericas.org/e/publication/health-equity-report-2016-full/ (I disclaim that I was the lead author of the report) and the 2017 Guatemala DHS to bring even more specificity.
The introduction was clarified so that it speaks to the situation globally. The reference shared was incorporated into the description of the setting leading into the Guatemala context.

- In page 5, these two sentences need references: "Satisfaction and willingness to recommend have been shown to have varying degrees of correlation. However, high satisfaction with a hospital does not always translate into high willingness to recommend."

Citations have been added.

- In p. 8, you wrote "Guatemala has one of the highest maternal mortality ratios in Latin America, second only to Bolivia [1]." First, there is a newer version of your reference. Second, Guatemala has the 12th worse MMR in Latin America and the Caribbean and the 10th worse if you only consider Latin America.

Thank you for catching this as the 2015 estimates were done using a different approach and are quite different from the estimates in the 2013 report. The statistics referenced in the paper are corrected in the text.

- Your reference 21 is incomplete.

This is updated.

- In p. 8, you wrote "In Guatemala, the low demand for institutional care (particularly among rural indigenous populations) stems from a lack of perceived need for and acceptability of institutional childbirth care [26]". Please note that you are making a statement that is based on a single study published in 2003. Additionally, there are several recent articles based on studies conducted on this topic in Guatemala that you have not included in your review.

Citations are added to reflected most recent estimates and literature.
Results

- After revising the previous sections, you should rewrite the findings and interpretation. Please make sure you do not conflate the hypotheses with the results.

The extraneous references and analysis included in the presentation of results was removed. References to hypotheses are now distinct from results. Further, all analysis is now only in the discussion/conclusion sections.