Author's response to reviews

Title: Barriers To Women's Participation In Inter-Conceptional Care: A Cross-sectional Analysis

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Version: 2 Date: 31 October 2011

Author's response to reviews: see over
Authors’ Response to Reviewers

Reviewer 1:
- Paragraph (P) 3: you mention “six peer-reviewed studies” but only gave the Ref for 5…what about the 6?
  • We corrected this. There are 5 studies.

- P 3 refers to figure 1; is it figure 1A?
  • It should be Fig 1A. We corrected this.

- P4 refers to figure 1b…but the figure is 1B. Be consistent with the way you name and cite the figures and tables. Use capital letter or small letters.
  • This should be 1B, we corrected this.

- Figure 1A,B not clear, it is not helping to understand the ideas explained in P3 and 4.
  • We revised the figure to make it more explanatory.

Results
- P 1 you need to refer to Table 1
  • We added a reference to Table 1.

- Revise the use of sign as %, be consistent.
  • We changed to “percent” if part of a sentence and (%) if in parenthesis.

- P4 needs review. Do you mean smokers are less likely to attend all visit vs no smokers?
  • Smokers are more likely to miss some visits than to attend all visits. The comparisons are across visit levels.

  - You mention two levels of interventions. You need to address about this levels in Methods
    ➢ The authors are not clear where this reference arises in the text. We measure 3 levels of participation in the interconceptional interventions. In the discussion, we discuss the fact that some of the interventions are more intense than others, thus there may be higher participation in the ones that are less invasive.

- P6: The predictive power of Model Components are not show in Table 4
  • This should have read Table 3. We corrected this.

- Last paragraph mentioned differences in demographics characteristics of smokers vs no smokers. Are these significant?
  • The differences between smokers and no-smokers are significant. We added text to reference this on p 13.
- I suggest explaining the results by table. It is confusing if the reader needs to go back to a previous table.
  - This problem should be addressed since we fixed the erroneous Table references.

Discussion
- In general well done
- Some references are missed (eg. P1 “is one of the most comprehensive sets of factors known to…”)(Ref)
  - This statement was edited to :”…and contains a comprehensive set…."

- Even when the author operationalized almost all variables suggested as relevant to vulnerable population, I suggest reevaluating the way you operationalized the variables (eg. Social support, perception of competing needs). Each instrument reflects a descriptive theory about a concept, as well as the parent conceptual model (Fawcett, 1999). I believe it’s too adventurous concluding that the model is not capturing the barriers and facilitators.
  - Given the nature of the questionnaire that elicited this information, we cannot change the way the variables are operationalized. We feel that since the questions are fairly direct and require the subject to evaluate their own situation, it is fairly representative of their context. When we state that “the model is not capturing the barriers and facilitators”, we mean that it does not appear to capture the relevant remaining factors for this population. Since the intervention addressed many of the factors that this model evaluates, we wanted to see what remained as explanatory after these common barriers were addressed.

Tables
- Too much information in tables. I suggest summarize.
  - The authors could not find a way to summarize the tables without losing important information. We are open to specific suggestions.

  Include the predictive power of the models in the tables.
  - Included

Reviewer 2
it is not clear what these barriers are and how well they were addressed. For example, the authors state that all women were provided with transportation, but did not describe how this occurred (e.g., were the participants given free bus tokens?) Indeed, without knowing what the barriers are and how well they were addressed I am not convinced with the conclusion the authors reach that “Actively removing common barriers to care does not guarantee the long-term and consistent participation of vulnerable women in preventive care”. In order to better support their conclusion, if possible, it would be helpful to provide a specific list of the barriers addressed, how were they addressed.
Text was added to specify the nature of the facilitation

Modelling:
- The authors state that “The number and magnitude of risk factors identified determined the intensity (duration and number of visits) of the intervention”. Among these risk factors included smoking. However, smoking was also used in the model under predisposing factors (even though none of the others risk factors were included). Smoking was significantly related to service uptake; however, isn’t it possible that smoking simply acted as a proxy for intervention intensity? That is, b/c smokers were at a higher risk, they were prescribed more intervention sessions and, therefore, were less likely to attend them all.
- As eluded to above, why was intervention intensity not controlled for in the modelling? Indeed, the authors acknowledge this issue as a potential limitation.
- Why was smoking included in the model and not the other risk factors (e.g., genito-urinary infection, weight control, depression, housing inadequacy (stressor), smoking cessation and periodontal disease) which could be included under the need category?
  - Smoking intervention was actually not as invasive as some of the other interventions were. It entailed education, motivators and support to cease smoking. As an example, someone with severe periodontal disease required several appointments to clean out the gums—a very painful procedure. As such, smoking is not the most intensive intervention. Additionally, smokers are also very likely to have had other risks for which they were given appointments for intervention.
  - Additionally, we planned to control for intervention, but the sample sizes were not large enough to do so. We are unable to make objective categorical decisions about intensity of interventions, because this was individually determined by subject and mediated by her specific social context. It may have been easier, for example, for a subject to get excused from work for periodontal work as compared to for a smoking cessation session because of the social meaning and judgment attached to this.
  - Smoking does indeed pose a special challenge in this analysis, particularly since it is the only factor that appears significant. We did not control for the other factors because we felt it would constitute over-control. As stated in the text above, we would have preferred to address this issue by stratifying for each intervention, but small sample sizes would not make this feasible. So why control for smoking at all? We felt that smoking is a behavior which is “legal”, but which has severe restrictions placed on the location of where it can take place. Currently, most cities will not allow smoking within a specified distance from health facilities. Smoking is also an addictive behavior, thus we surmised that women may determine that the restrictions on smoking may make it more stressful for them to attend appointments. The same does not apply to the other risk conditions.
- Why did the authors decide to recode the count-based dependent variable (i.e. number of scheduled visits attended/total prescribed) into categories? Much information is lost when variables are recoded this way. Moreover, the cutoff
points seem to be arbitrary. For example, is there a theoretical reason why there would be much difference between women attending 99% (included in category 3) versus 100% (included in category 4) of their visits? Did the authors consider using a count-based model such as Poisson?

- Given that the authors chose to use a categorical outcome rather than a count-based one, analyzing the data using a proportional odds model makes sense. Indeed, one of the advantages of this model versus others like multinomial logistic regression is its more simplistic interpretation (i.e., there is only 1 coefficient to interpret rather than 3 in this case). While the authors stated that the proportional odds assumption was not met, rather than jumping straight to the multinomial model, did the authors consider testing whether some of the categories could be collapsed? Alternatively, did they consider using different cut-off points to create categories?

- The cutoff points were chosen to maximize some conceptual understanding of what was happening. While the middle categories may be muddled a bit, there is a clear difference between women who attend NONE, vs. All visits. Our goal in this analysis was to understand why women missed appointments at all when most barriers were reduced. We ran the distributions of number of appointments by attendance rates and found the following mean appointment rates:

<table>
<thead>
<tr>
<th>Attendance Rate</th>
<th>Mean # Appointments</th>
<th>Range of Appts. +/− 1sd</th>
</tr>
</thead>
<tbody>
<tr>
<td>No visits</td>
<td>2.26</td>
<td>1-5</td>
</tr>
<tr>
<td>Some visits (1-50%)</td>
<td>8.95</td>
<td>4-14</td>
</tr>
<tr>
<td>Most visits (51-99%)</td>
<td>9.77</td>
<td>1-19</td>
</tr>
<tr>
<td>All visits (100%)</td>
<td>2.58</td>
<td>1-4</td>
</tr>
</tbody>
</table>

Women who attended no visits had about the same number (mean) of appointments as women who did not attend ANY of their scheduled appointments, and the distributions were narrow, indicating little variability. The range of scheduled visits for the other categories was much wider. We determined that there was enough difference between the two middle categories to warrant keeping them separate.

Minor Essential Revisions:

Research Design and Methods:

- I feel that a number of the variables were inadequately described. For example, “availability of social support (Y/N)” – how was this measured? “Self report of prior experience with providers (Good/Poor)” – again, what does this entail? Moreover, are you referring to medical providers or social service providers?

- Related to above, it is not clear what the following referred to: “size (1 or 2 members vs 2 or more)”. I assume it means family size? Also, Table 1 indicates smoking status is a predisposing factor but it is not mentioned in the measures section of the paper.

- These measures were assessed via a questionnaire thus will reflect the perception of the subject. The questionnaire defined social support as “do you have someone you can rely on to provide emotional, material or physical support…” and allowed the subjects to determine whether they felt they had adequate social support. We could specific the specific questions used in the questionnaire, but will await advice from the editors as to whether there is space to do this and/or if
an appendix is recommended.

- The authors mention that other system factors were not addressed because they were not included in the parent model. What are these system factors and why were they not included?
  - Other systems factors indicated by the Anderson model were not included in our model because we did not have data to assess them. These included information on language barriers, homeless length, shelter type, prison history, specific health problems.

Results:

- It is unclear what model the authors are referring to when they report the results of Table 4 (i.e., the full model of the other specific models). Do the authors ever report the results of the full model presented in Table 4? To me, this model is the most important as it controls for all factors simultaneously.
  - This is included in the text.

- When the authors report the results of the “predictive power of the model components” they refer to Table 4. It seems to me that they should be referring to Table 3. If that is the case, why did they round down to p=0.05 in the text when the figure reported in the table is 0.058?
  - Corrected
**Discretionary Revisions (which are recommendations for improvement but which the author can choose to ignore)**

**Theoretical Framework**
-I would recommend adding more details about the theoretical framework and, specifically, how the model was adapted to apply to vulnerable populations. Also, while the authors stated that “This model is well documented and widely used to determine predictors of access to care”, they did not provide any citations to support this fact. In particular, are there other studies that use Andersen’s model in a similar way?
- Pub med review shows that the model has been cited in 60 papers. We chose not to add more information about the model since it is widely used and cited.

**Research Design & Methods:**
- Based on the description of the study population provided in the paper itself, it is not clear how women were selected for the original study. For example, was the only inclusion criterion “Resident women experiencing a preterm birth at <34 weeks of gestation”. What were the exclusion criteria? I know the authors provide a reference to the original study; however, I think it is important to provide the basic inclusion/exclusion criteria in this paper too.
- We added text to elaborate

**Discussion:**
- I think the following statement (originally found in the discussion) should be moved to the end of the introduction in order to improve the overall clarity of the paper:

> “In this study, we applied the model to a population that differed from previous studies in two fundamental ways: (1) the population of women was receiving preventive care in the interconceptional period, and (2) as part of the care protocol, all traditionally known barriers to care were addressed to facilitate participation in the clinical trial. We expected to be able to identify which factors above and beyond those already addressed as part of the care protocol exerted impact on women’s participation in interconceptional care.”
- We moved the sentence as requested.

- The authors should add the word “attended” in front of ALL visits in brackets at the end of the first paragraph of the discussion.
- completed

**Tables:**
- In Table 3, I suggest writing out the labels of the individual models in full.
- completed
- In Table 4, while I appreciate the “sample interpretations” I think these descriptions may be more appropriate in the text. That being said, I am not sure any of the 5 interpretations provided are good examples given that the odds ratio is not significant (maybe use smoking as an example?). Also, the footnotes are not in order.
Other editorial issues from Editor:

1.) Please can you include all of the author's email addresses on the title page for your manuscript.
   ➢ completed

Title page: This should contain; Title, Author list, Affiliations (department names, institution name, street name, city, zip code, country), email addresses. The author list and email addresses must be identical in the manuscript file and on the submission system, and it must be clear which affiliation pertains to each author.
   ➢ Completed

2.) The Objective section of abstract should be renamed as Background and should include the context information of the study.
   ➢ Completed

3.) Competing interests: Please include a 'Competing interests' section after the Conclusions. If there are none to declare, please write 'The authors declare that they have no competing interests'. Please check the instructions for authors on the journal website for a full list of questions to consider when writing your competing interests statement.
   ➢ Completed. Declaration sentences added

4.) Acknowledgment: We strongly encourage you to include an Acknowledgments section between the Authors' contributions section and Reference list. Please acknowledge anyone who contributed towards the study by making substantial contributions to conception, design, acquisition of data, or analysis and interpretation of data, or who was involved in drafting the manuscript or revising it critically for important intellectual content, but who does not meet the criteria for authorship. Please also include their source(s) of funding. Please also acknowledge anyone who contributed materials essential for the study. Authors should obtain permission to acknowledge from all those mentioned in the Acknowledgements.
   ➢ No acknowledgements outside of authors
Please list the source(s) of funding for the study, for each author, and for the manuscript preparation in the acknowledgements section. Authors must describe the role of the funding body, if any, in study design; in the collection, analysis, and interpretation of data; in the writing of the manuscript; and in the decision to submit the manuscript for publication.

- Included

5.) Tables as additional files: We notice that you have included tables as additional files. If you want the tables to be visible within the final published manuscript please include them in the manuscript in a tables section following the references. Alternatively, please cite the files as Additional file 1 etc., and include an additional files section in the manuscript.

6.) Figures: We note that the figures have been included in the manuscript file. Please upload the figures as separate figure files using the "upload" form on the submission system only, and delete the figure from the manuscript file. The figure file should not include the title (e.g. Figure 1... etc.) or the figure number. The legend and title should be part of the manuscript file, given after the reference list. Please ensure that the order in which your figures are cited is the same as the order in which they are provided. Every figure must be cited in the text, using Arabic numerals. Please do not use ranges when listing figures. For more information, see the instructions for authors: http://www.biomedcentral.com/info/ifora/figures.

7.) Figure titles: All figures must have a figure title listed after the references in the manuscript file. The figure file should not include the title or number (e.g. Figure 1... etc.). The figures are numbered automatically in the order in which they are uploaded. For more information, see the instructions for authors: http://www.biomedcentral.com/info/ifora/figures.