Author's response to reviews

Title: Women and Postfertilization Effects of Birth Control: Consistency of Beliefs, Intentions and Reported Use

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Author's response to reviews: see over
We appreciate the reviewer’s thorough critique of our paper and believe that in addressing the review, the result is a much improved and more scientifically sound paper. The following are our responses to each of the reviewer’s comments, in reference to the revised paper.

**Detailed Responses to the Reviewer’s Comments**

1. Is the question posed by the authors new and well defined? Yes, the question is new and it is well defined. However, the background of the paper (and the discussion) sounds like they were written for another paper about women’s understanding, beliefs and intent to use different forms of birth control. The main goal of this paper, per the authors, is to assess the consistency of responses of subjects who answered a survey about their beliefs and understanding of how methods of contraception work. Thus, the background should review the literature on response consistency in survey research as well as discuss why this is important for this particular topic and in a clinical setting. The entire argument of the paper is for enhancing women’s knowledge about how birth control methods work but without fully reviewing prior research in response consistency, what it means and why it is important.

We have rewritten the Background (beginning on page 4) and also streamlined the Discussion (beginning on page 13) to focus on the main goal of the paper. Our main conclusion is that there is consistency between beliefs about how methods work, beliefs about the beginning of human life, intention to use birth control methods, and actual use of methods. This supports our secondary conclusion that accurate information about how methods is important to many women in their decision making about birth control methods.

Little research about contraceptive behavior has incorporated a theoretical framework. The main theoretical construct underlying our analysis in this paper is the Theory of Planned Behavior, which proposes a direct relationship between beliefs, intentions, and behavior. We have introduced this analytic framework to the Background to set the stage for our analysis. The Theory of Planned Behavior was already present in the Discussion, but we have amplified in the Discussion on how it relates to this study, and how it has been used in previous studies of contraception and prevention of sexually transmitted infection. While our findings are supportive of the model suggested by the Theory of Planned Behavior in relation to postfertilization effects, there are also a number of gaps that we have identified and proposed to address in future research, again in the revised Discussion.

Our understanding of research in response consistency is that it relates to a different type of analysis than we have conducted in this paper. Specifically, response consistency may relate to multiple psychometric items that seek to measure an underlying construct, test-retest reliability, or change of response over time in response to learning or changing opinion. None of these were addressed by our study. We have added language to the discussion clarifying this, particularly on pages 13-15.
2. Are the methods appropriate and well described, and are sufficient details provided to replicate the work? There is not enough detail on the pilot-testing of the survey or regarding any waivers of written or parental consent in the methods section.

We have added language on pages 6 and 7 addressing each of these issues. The information in the revised paper and the availability of the questionnaire on request (as stated further below) should be sufficient to allow replication of the work.

3. Are the data sound and well controlled? They are sound. The issue of control is not applicable to this survey study.

No response required.

4. Does the manuscript adhere to the relevant standards for reporting and data deposition? Yes.

No response required.

5. Are the discussion and conclusions well balanced and adequately supported by the data? No. The discussion should include much more about how the authors data on response consistency compares with other research in the literature on response consistency. The conclusion does not address how consistency of response from the authors data relates to the authors conclusions.

This is addressed by our response to item #1, above. Our main conclusion is that there is strong consistency in this sample between beliefs about the beginning of human life, beliefs about how methods work, intention to use methods, and actual use of methods. The revised discussion amplifies how our work is consistent with the Theory of Planned Behavior (pages 13-14). We have also clarified how this supports our secondary conclusion that accurate information about how methods is important to many women in their decision making about birth control methods (page 16).

6. Do the title and abstract accurately convey what has been found? No. The title is clear and appropriately informs the reader that this is a study about consistency of responses on a survey. However, the abstract results are presented in an order that makes the reader think that this paper will focus on subjects beliefs and intents when the paper is really entirely about the consistency of subjects responses. The abstract would more accurately represent the paper if lines 1-4 of the results section were moved to the end of the results section instead of leading the paragraph.

We have rewritten the abstract to focus on the main analysis and results of the study. We have also added and removed one word on the title, to make it reflect the study even more precisely.
7. Is the writing acceptable? Yes. It is written in clear English

No response required.

Pages 4 and 5: The background of the paper (and the discussion) sounds like they were written for a different paper presenting results of women's understanding, beliefs and intent to use different forms of birth control. The main goal of this paper, per the authors, is to assess the consistency of responses of subjects who answered a survey about their beliefs and understanding of how methods of contraception work. Thus, the background should review the literature on response consistency in survey research as well as discuss why this is important for this particular topic and in a clinical setting. The entire argument of the paper presented is to enhance women's knowledge about how birth control methods work but the authors do not provide a review of prior research in response consistency, what it means or why it is important.

This has been addressed in the revised manuscript by our responses to items #1, 5, and 6, above.

Page 4, Background section, paragraph 2: the term clinically recognized pregnancy is not clear in the context of this sentence and should be clarified.

This sentence has been removed in the revised and focused Background.

Page 4, paragraph 3, line 4: there should be a comma between personal and moral

The comma has been added.

Page 5, Methods section: last paragraph, lines 4 and 5: should the term personal opinion be called beliefs?

We agree that this is a more appropriate term and have replaced the term here and in several other places in the paper where it is appropriate. Similarly, we have substituted the word beliefs for understanding in other points in the manuscript where the focus is more on belief than on understanding of factual content.

Page 5, paragraph 1-3: Can the authors please clarify that the questionnaire from which the data for this paper was obtained was a self-administered survey (versus a face to face interview)? This is somewhat confusing throughout the paper. Also, how long did it take subjects to complete the survey?

This has been addressed in the revised manuscript by the response to item #2 above.

Page 5, paragraph 1 - 3: Can the authors provide more information regarding how well subjects understood the staging terminology (either based on their pilot testing or this survey study)? More detail would be helpful in paragraph 3 where the authors refer to a
work under review (reference 15). How old were the 21 patients in Salt Lake City who piloted the survey? When was this survey conducted? Will the authors make this survey available upon request via this journal?

**We have added information about subjects’ understanding of the staging terminology, as assessed during pilot testing, on pages 6 (methods) and 17 (discussion). We have removed the reference to a work under review, because it is not yet accepted for publication and cannot be cited. Unfortunately, we did not collect information on the age of the patients who pilot-tested the questionnaire. The survey was conducted in 2002, and that information has been added on page 7. We have added a statement on page 6 that the questionnaire is available on request.**

Page 7, paragraph 1: The authors mention the religious affiliation of the organization. This could be more fully discussed in the discussion section as a potential bias of the population (although the authors did discuss the limitations of generalizability of their findings in the discussion)

**We have added text emphasizing this point in the discussion, page 16.**

Page 7, paragraph 2: The authors refer to study researchers presenting the questionnaire to subjects. Again please clarify if this was a self-administered survey or a face to face interview. What was the gender and background of the study researchers? Where they doctors, nurses, research assistants?

**This has been addressed in the revised manuscript by the response to item #2 above.**

Page 7, paragraph 2: For subjects who were minors, was there a waiver of parental consent or did their parents have to give written consent? For all adult subjects, was written consent obtained to participate or was this waived?

**This has been addressed in the revised manuscript by the response to item #2 above.**

Page 7, Statistical Analysis section, paragraph 3, line 3: there should be the word of between the words methods and birth control and the second methods should be deleted.

**We have made these changes.**

Table 1: Why were birth control methods used currently combined with future birth control methods in table 1 - these seem like two different levels of behavior (one is current use and the other is intent to use). Why were the transdermal patch and the vaginal ring not on the list of methods? When was this survey done? Pre-2002?

As stated on page 12, “use in the near future” was used as a proxy for “current use” for women who were pregnant at the time of the questionnaire. We believe this is a reasonable way to assess birth control use in the context of including pregnant
women in the study sample. As noted above and in the revised manuscript, this survey was done in early 2002, prior to general availability of the transdermal patch and the vaginal ring in the United States.

Pages 9 and 10 sentence structures for these pages of results are very complex and were often times confusing requiring multiple readings of each paragraph. Can these be simplified at all?

**We have simplified the language to the extent possible, still on pages 9 and 10.**

Page 11, paragraph 2, last line: the word nor should be changed to or

**This change has been made.**

Page 12-16: the discussion should include how the authors data on response consistency compared to the literature on response consistency.

**This has been addressed in the revised manuscript by our responses to items #1 and #5, above.**

Page 13, paragraph 1: It would be helpful if the authors would address how women should be educated about the mechanism of action of birth control methods in light of the fact that it is often unknown what percentage of the time each method works by each stage.

**We have added language acknowledging this issue explicitly in the last sentence of the abstract and on pages 16 and 18. On further reflection, we do not believe that it is within the scope of the paper to address this complex issue in any detail. Throughout the paper, we have made our recommendation of educating women more tentative in this context. In the conclusion, we have clearly indicated where we have made our own interpretation of the importance of educating women about mechanisms of action.**

Page 13, paragraph 2, line 5: change the word whats to what is

**This change has been made.**

Page 15, paragraph 2: The authors should cite references to support their claim that it is the role of the package insert to educate women about early stages of human reproduction. This is controversial (though not presented as so by the authors). No other medications are expected to educate consumers about, say, the gastrointestinal system or the nervous system in the cases of medications such as H2 blockers or SSRIs. It is unclear why the package inserts of contraceptive should have a different role than that of other medications. Especially given that the exact mechanism of action of many contraceptives is not clearly know (in terms of % of time working at different stages).
We agree that the package insert may not be the best or even the primary way to educate women about the early stages of human reproduction. On further reflection, we do not believe that it is within the scope of the paper to address this issue and have removed it from the paper.

Page 16, paragraph 3, line 5: The authors say filling out the questionnaire here but it would help in the methods section to clarify that this was a self-administered survey.

This has been addressed in the revised manuscript as per the response to question #2 above.

Page 17, Conclusion: How is consistency of response from the authors data related to this conclusion?

As stated above, we have added language indicating the link between the consistency of responses and the importance of educating women about mechanisms of action of birth control methods, particularly on pages 15, 16, and 18. We have made it clear that this is our considered opinion and why we believe our data supports this opinion. It is beyond the scope of this paper to speculate on how exactly this might best be accomplished.

Page 18, reference 15: please add t to title of word postfertilization

This change has been made.

Table 1: What were the patch, ring and natural family planning not included in the table? It would be helpful to include the n of the sample size so the table can stand alone. Why are 95% confidence intervals relevant here?

As noted above and in the revised manuscript, this survey was done in early 2002, prior to general availability of the transdermal patch and the vaginal ring in the United States. We believe that the 95% confidence intervals are relevant in this and subsequent tables to indicate a range of certainty for which we have measured the various variables in this clinic-based population of women, given the size of our sample. We have added the sample size to the table.

Table 2: Since the title of the table is Personal Opinion of What Stage a Birth Control Method May Act, why are abortion, RU-486 included in the table since they are not birth control methods? These should not be in a table labeled such or the title should be revised to more accurately reflect the variables. The sample size would help this table to stand alone.

We have revised the title of the table for increased clarity. Although many people argue that surgical or medical abortion are not legitimate methods of family
planning, others argue that abortion is an essential part of the spectrum of birth control methods that should be available to women. Strictly speaking, abortion is certainly a widely used method of reducing or controlling birth. We don’t think anyone will have difficulty sorting out that birth control in this table includes both family planning methods as well as medical and surgical abortion. We have added the sample size to the table.

Finally, in the process of reviewing the paper comprehensively, we found a few opportunities for clarifying the language. In addition, we found some transcription errors in the numbers in the tables (involving the confidence intervals), which we have corrected.