Author’s response to reviews

Title: Traumatic events: Exploring associations with maternal depression, infant bonding, and oxytocin in Latina mothers

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Dear Dr. Shafiei,

Thank you for the opportunity to revise and resubmit our manuscript entitled, “Traumatic events: Exploring associations with maternal depression, infant bonding, and oxytocin in Latina mothers”. We want to thank the reviewers for their time and thoughtful comments, which were tremendously helpful. In addition to addressing reviewers’ comments, we formatted the manuscript to adhere to the journal’s guidelines (track changes not shown). Attached is our revised manuscript with added text in bold. Below is our response to reviewers’ comments. We hope our revisions meet your expectations.

Response to Reviewers

Phyllis Zelkowitz (Reviewer 1)
This manuscript explores the associations between maternal traumatic experiences, self-reported depression and bonding in a very small sample of Latina mothers. The mediating role of plasma oxytocin is also explored.

The literature review is not specific as to the construct of bonding, and how it might be distinct from attachment.

Response: Thank you for pointing that we did not distinguish between bonding and attachment. The introduction has been revised to include a definition and the relevant literature has been cited.

The associations between oxytocin and depression, and even oxytocin and trauma, have not been definitively established, with some studies finding positive correlations between oxytocin and these variables, and others showing the opposite direction of effects.

Response: We agree that while there is limited research exploring associations between oxytocin, depression and trauma, our review of the literature shows that lower levels of oxytocin have been associated with postpartum depression and trauma. We hope the cited literature helps clarify these associations.

The rationale for studying a sample of Latina mothers could be further elaborated - are these a particularly high risk groups of women? Are there other characteristics that make them a particular target for this type of study?

Response: We concur that a stronger rationale for focusing on Latinas was needed. Therefore, we added such justification and cited the literature in the introduction (please see bold text).

What is the rationale for the 4 week and 8 week timepoints?
Response: The rationale for the timing of the postpartum assessments has been added to the methods, under procedures. There we explain that “The time points were modeled after a prospective study of maternal mood and hormone function [9]. The week 4 interview was conducted by phone to reduce participant burden.”

The sample description does not explain why only 35 of 64 women who were screened enrolled for this study.

Response: We apologize for not clarifying why 34 of the 65 women who were screened were enrolled. We address this oversight in the methods as follows: Sixty-five self-identified prenatal Latinas were screened for eligibility and were contacted by phone to participate in the study. Of the 65 screened, 34 women were available and willing to participate (see for feasibility and recruitment details [20]).

The sample was likely too small to consider controlling for some important variables, including parity and education; however, these factors might have affected the results.

Response: We agree that our sample size limited the complexity of our analyses. We address this limitation in the discussion and limitations.

Moreover, oxytocin was assayed when women were either breastfeeding or bottlefeeding. Breastfeeding is associated with oxytocin letdown - how might this have affected the results?

Response: This is a great question, which we addressed in the limitations as follows: Finally, while there were no significant differences in OT AUC between women who bottle-fed and those who breastfed, future studies should capture mother-infant interactions during feeding observations to fully capture behaviors that might account for differences in hormone levels as well as maternal bonding.

More information on the validity of the PBQ would be of interest.
Response: We provided the following additional validity of the PBQ in the measures section within the methods: The scales used here have been shown to have acceptable Cronbach’s alphas levels: 0.86 for Impaired Bonding, 0.89 for Rejection and Anger, and 0.67 for Anxiety about Care [25]. This measure has been used with Latina mothers [24].

The calculation of the various trauma scores was not clearly explained.

Response: The calculation of the various trauma scores have been clarified as follows: Responses were coded as yes if the participant reported a childhood or adult traumatic event or no if none such events were endorsed, which provided a count for the number of childhood or adult-related events. All childhood-related traumatic events (e.g., sexual abuse) were grouped into one variable as were adult-related traumas (e.g., intimate partner violence). However, traumatic events involving the woman’s child were grouped together. To capture lifetime trauma, all forms of trauma were summed.

The interpretation of marginally significant findings is not warranted. How can differences in results at 4 weeks and 8 weeks be explained?

Response: We agree that marginally significant findings are not warranted and have removed those findings.

The discussion should emphasize that the findings reported here are exploratory and preliminary.

Response: As suggested, we have emphasized the findings as exploratory and preliminary in the discussion.

The shared method variance of the self-reported measures of trauma, depression, and bonding should be noted as a limitation.
Response: We have added this limitation to the discussion (please see page 20 of the manuscript).

Tiffany A. Moore Simas (Reviewer 2):

Abstract:
- Given the small sample size and stated exploratory nature of the study, the conclusions are too strong and should be pared back. Certainly additional work in this area is merited.

Response: We agree that it needs to be clearly stated that this work is exploratory. As suggested, we have noted this in the conclusions.

Background:
- Last 2 sentences of paragraph 1 are saying the same thing only making a distinction between 'traumatic histories' and 'IPV histories' - - as IPV history is arguably a traumatic history (as indicated in the 3 sentence of this paragraph), the distinction between these two sentences is not clear and thus confusing. Please clarify and/or condense.

Response: Thank you for pointing out the redundancy. We have condensed the text to provide clarity.

Methods:
- Participants Section
  - Remove last sentence to results section, include % breast versus bottle feed

Response: This was a great recommendation. We moved the demographic information to the start of the results and added the proportion of women who bottle- or breastfed.
Response: The following inclusion/exclusion criteria have been added: To be eligible to participate, women had to self-identify as Latina, have a singleton pregnancy, be able to read, write, and speak English or Spanish, intend to breastfeed >2 months, and be willing to be followed until 8 weeks postpartum. Exclusion criteria included self-reported maternal or infant disorders that might interfere with breastfeeding, substance use, and current or past severe psychiatric disorder other than unipolar depression (e.g., bipolar disorder).

- Procedure section would benefit from a figure depicting what data was collected at which time points:
  
  o Third trimester enrollment (face to face) - demographics, depr/anx, trauma hx
  
  o 4 wk postpartum (phone) - depr/anx, breast feeding
  
  o 8 wk postpartum (lab) - lab, depr/anx, trauma

Response: Thank you for this great suggestion. We created a figure to illustrate when women were assessed and how. We also edited the procedures within the methods to further clarify data collected at each time point.

- Please indicate when bonding was assessed

Response: We apologize for this oversight. The introduction and measures section have been edited to show that bonding was assessed at 4 and 8 weeks postpartum.

- Measures

  o The abstract indicates that higher scores on the PBQ represent more compromised bonding however the measures section does not elaborate on this. It is worth repeating here and potentially elsewhere in manuscript as many readers will not be familiar with this scale

Response: We agree that it was necessary to repeat the meaning of the PBQ scores in the methods, results and discussion.
Clarify on p. 10 line 41 whether women fed their infant using either bottle or breast for 10 minutes as per their personal preference or whether this was assigned by the study.

Response: To added the following text to clarify that women chose the feeding mode during the laboratory visit: Women chose to feed their infant either using bottle or breast for 10 minutes.

Data analysis section

The penultimate sentence in this section mentioned the exploratory nature of this study - this merits mention earlier as part of background and again at start of discussion.

Response: As suggested, the introduction and discussion now state that this study was exploratory.

Results:

- It is hard to put the high rates of PPD in context when eligibility/ineligibility criteria are not provided. Additionally, as previously noted would move demographics of participants here as there are several associated with increased risk PPD and thus these in addition to focus on Latina population provides some insight. This merits discussion in the discussion section.

Response: As noted above, we have added eligibility/ineligibility criteria to the methods. We also added the following to the discussion regarding the increased risk of PPD given the demographic profile of participants: Lower socioeconomic status and a history of adverse life events are risk factors for PPD [42], and some research suggests migrant status also increases risk when combined with these other predictors [43]. Given the rates of such risk factors in our sample and Latinas in the US, it will be important to include a larger number of immigrant and US-born Latinas to examine the effect these risk factors along with PPD have on mother-infant bonding.

- P. 13 - line 26 - the authors refer to the 'number' of infant-related traumatic events - was this really a number of a categorical yes/no variable?
Response: You are correct that this is a dichotomous variable. We revised the correlation analysis to account for the dichotomous and continuous variable and added the following in the data analysis section: Point-biserial correlations were conducted to assess the associations between a history of a traumatic event involving an infant (dichotomous) and PBQ subscale scores (continuous).

We also revised the correlation results as follows: Trauma history involving an infant was positively correlated with Impaired Bonding (r = .55, p = 0.003), Rejection and Anger (r = .60, p = 0.001), and Anxiety about Care (r = .65, p < .001) at 4 weeks postpartum, as well as Impaired Bonding at 8 weeks postpartum (r = .48, p = 0.009).

- As IPV is being pointed out specifically in results and discussion, consider adding a relevant column to the table

Response: We have edited the manuscript so that it is clear when we are specifically referring to IPV. We used the term “adulthood trauma” in most places.

Discussion:
- Given the small numbers, exploratory nature of study and numerous comparisons. . .the study discussion should start by addressing this again.

Response: The discussion now begins with clarifying that this is an exploratory study.

- See prior note regarding high rates of PPD - would be worthwhile adding relevant literature when stating that 'these rates surpass those of the general population'

Response: Thank you for this suggestion. The introduction and discussion now provide estimates compared to the general population (10-19%).

- Consider discussion point ref role of breast/bottle feeding in results
Response: We addressed the potential role of feeding mode in the limitations as follows: Finally, while there were no significant differences in OT AUC between women who bottle-fed and those who breastfed, future studies should capture mother-infant interactions during feeding observations to fully capture behaviors that might account for differences in hormone levels as well as maternal bonding.

- Consider collecting data on exogenous oxytocin exposure (e.g. labor induction, labor augmentation, and/or postpartum hemorrhage prevention) and comment to how this exposure may/may not alter these results

Response: This is an excellent suggestion. We have added the following test in the text in the limitations: Given the mixed effects exogenous oxytocin exposure (e.g., labor induction, labor augmentation, and/or postpartum hemorrhage prevention) has been shown to have on breastfeeding [44] and its potential long-term effect on endogenous levels [45], subsequent studies should account for exposure to account for potential differential levels by breastfeeding status and maternal-infant bonding.

Other:

- There are some minor occasional grammatical errors - please review.

Response: We have edited the entire manuscript.

- The term infant trauma focuses the reader on the infant rather than on the mother's experience, consider renaming birth-outcome related traumatic events are something that implies that it is the mother's experience of the event that is relevant

Response: This is a great point. As a result, we have edited the text to read “traumatic event involving an infant” instead of infant-related trauma.