Author’s response to reviews

**Title:** Psychological distress and self-rated health status in reproductive aged women with pain: findings from a national, cross-sectional survey

**Authors:**

April Miller (April.Miller@utas.edu.au)

Fiona Judd (Fiona.Judd@ths.tas.gov.au)

Peter Dargaville (Peter.Dargaville@ths.tas.gov.au)

Amanda Neil (Amanda.Neil@utas.edu.au)

**Version: 1 Date: 22 Dec 2018**

**Author’s response to reviews:**

Thank you for the valuable and encouraging reviews of our paper, and the opportunity to improve our manuscript.

We have addressed the reviewers’ comments incorporating the changes outlined below, and otherwise justified where changes have not been made. The corrections and changes have been made as succinctly as possible, however the word count has increased slightly from 2032 to 2091 words.

Reviewer One:

**Overall comments:**

The rational and purpose of the study is clear. The authors clearly state that they measured acute pain not chronic pain because the respondents rated their pain via self-report in the last four weeks.

We thank the reviewer for their positive comments about our paper.

Specific comments:

1) The sampling method of determining 4380 women aged 18 to 49 yrs. from the overall sample of 20460 needs to be described and explained in more detail.
To improve the clarity regarding identification of the participant sample, within the Methods section we have:

a) specified the age-range of the sampling frame for the National Health Survey (Lines 76-78) as follows:

The survey used a stratified, multistage design collecting data from persons across the lifespan within the Australian population, living in private residences by face-to-face interviews with trained staff of the ABS.17

b) included an additional sentence in Paragraph 2, Lines 80-82 to clarify how the included participant sample was identified as follows:

‘The overall sample included n=20,460 persons.16 For this study, only data from female participants aged 18 to 49 years were extracted from the ABS Confidentialised Unit Record File (CURF). These sample data were then weighted to infer population estimates based on benchmarks established by the ABS using Australian Census data.12, 15’

Further detail on the sample size of each subgroup of women (pregnant, breastfeeding or non-pregnant/non-breastfeeding) is included in the first paragraph of the Results section as these sample sizes were not known before conducting the data extraction. We note these data were wrongly placed in the Methods section of the Abstract, and they have now been moved to the Results with clear specification of the sample and weighted estimates as follows:

'Results: Moderate-to-very severe pain was reported by 17.6% of pregnant (sample n=165, weighted N=191,856), 25.9% of breastfeeding (sample n=210, weighted N=234,601) and 23.9% of non-pregnant/non-breastfeeding women (sample n=4005, weighted N=4,607,140).'

2) The measures of pain severity (only one question with 3 limited options) and self-rated health status (one question) are the main limitations of study.

We agree with the reviewer that the limited data on pain and self-rated health are major limitations of the study. In turn, the following sentence has been added to the Limitations paragraph of the paper (Lines 195-198):

‘Unfortunately, as the National Health Survey is undertaken to assess many aspects of health and illness in the Australian population, data collected on factors specifically related to pain and self-reported health status were limited.’
To address a lack of clarity regarding the pain severity categories available within the National Health Survey, and as employed in our study we have modified the Methods section (Lines 87 to 89) as follows:

‘Self-reported pain severity was defined as any bodily pain experienced during the previous four weeks on a six-point scale from ‘no pain’ to ‘very severe’. Participants who did not answer this question were coded as having an ‘unknown’ or ‘not applicable’ response. These categories were classified into four groups for this study; no pain, very mild to mild pain, moderate to very severe pain and not applicable or unknown.’

3) The reason for conducting non-parametric tests is not clear.

Non-parametric testing (Fisher’s exact test for independence) was undertaken due to small sample sizes in the pregnant and breastfeeding groups, as stated in the Methods section, Line 105-107:

‘Fisher’s exact test for independence was used to test for associations with pain severity due to low cell frequencies in the pregnant and the breastfeeding women groups, with a chi squared test used for the non-pregnant/non-breastfeeding (NP/NBF) group.’

4) The reported p value for the distribution of self-rated health status by pain severity is not defined.

As per our aims, we have assessed the distribution of self-rated health status by pain severity within each sub-group i.e., for pregnant, breastfeeding and NP/NBF women as provided in Figure 1 and the associated text (Lines 134-136). To maximise clarity, we have also specified the p-value for breastfeeding women as follows:

‘Figure 1 shows the distribution of self-rated health status for pregnant, breastfeeding and NP/NBF women by pain severity. Self-rated health status was associated with pain severity in pregnant (p=0.001) and NP/NBF (p<0.001) women, but not breastfeeding women (p=0.058).’

5) The other issue is related to the error bars with 95% confidence intervals. It seems it is a summary of two categorical bar charts in three groups because the Y Axes of error bar chart should be the mean not a percentage.

Figure 1 represents the percentage of women within each-sub-group and pain category experiencing the respective health-status. For clarification, we have modified the caption to this Figure, and the y-axis title.
6) It would be valuable to present the prevalence (n and %) of pain severity, psychological distress and self-rated health status in reproductive aged women.

Given difficulties accessing the data within the response timeframe, these additional results have not been able to be included. However, as the non-pregnant/non-breastfeeding group is so large in comparison to the other two groups of women, a calculation of overall prevalence (n and %) is not expected to differ markedly from those of the non-pregnant/non-breastfeeding group.

7) Discussion needs to be organised according to the two hypotheses and more clearly addressed.

With the shift of the paragraph (Lines 153 to 161) to the Introduction (Point 8), we believe that there is now a clear progression between aims within the Discussion.

8) Paragraph with the line number 153 to 161 should be moved to the introduction section of the manuscript.

This paragraph has been integrated into the Introduction section of the manuscript as requested, apart from one sentence which has been moved to the concluding paragraph of the discussion (Lines 217-219).

Reviewer Two:

General comments:

Thanks to the authors for this interesting paper looking at the relationship between pain severity and distress in reproductive aged women, with a focus on the antenatal and postpartum period. Overall, I think this is an excellent piece of work and only have minor comments.

We thank the reviewer for their very positive comments about our paper.

Specific comments:

1) Line 78: Is there any examples for bodily pain that are used in the questioning process? might help give the reader some idea of what can fall under 'bodily pain'.
The National Health Survey question asked, ‘How much bodily pain have you had during the last 4 weeks?’ With the following responses allowed:

1. None
2. Very mild
3. Mild
4. Moderate
5. Severe
6. Very severe

Unfortunately, no further detail was collected in this survey regarding factors describing the underlying aetiology of the pain which participants experienced in direct relation to the bodily pain question. Other questions were asked in relation to health comorbidities (not necessarily all pain related), these have been published in a previous paper and are referenced within the manuscript (Miller et al. 2018).

2) Line 121-128: While it is clear that self-rated health status changes with pain severity, the wording implies that as pain severity goes up self-rated health status goes down. But looking at Fig 1 (a) this doesn't seem to be quite so simple. The proportion of women rating their health as 'excellent' is higher in the severe pain group than in the no pain group. Perhaps a few words just so those who read the text only are aware of this.

Thank you for highlighting this important issue. To improve clarity, the following sentences have been added to this paragraph:

‘Overall, many women rated their health as either ‘Excellent’ or ‘Very Good’, despite their experience of pain (Figure 1 a, b and c). The main exception to this was seen in the NP/NBF women with moderate-to-very severe pain, where a small majority (33.7%) of women rated their health as ‘Good’ (Figure 1c).’