Author's response to reviews

Title: Paternal and maternal bonding styles in childhood are associated with the prevalence of chronic pain in a general adult population: the Hisayama Study

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Responses to the Handling Editor

We thank you for the positive comments and helpful suggestions for the improvement of our paper. The comments and suggestions made are listed below, followed by our responses to each.

Concerning responses to Reviewer 2:

Comment 1:
Response 2: The authors' additional analyses imply that the combination paternal optimal / maternal non-optimal is similar to paternal optimal / maternal optimal. Is that correct?

Response 1:
Yes, that is correct.
Controlling for demographic variables and depression, the odds ratios (ORs) for having chronic pain were significantly higher in the combination paternal non-optimal/maternal optimal (OR: 2.66, 95% CI: 1.28-5.54, \( P = 0.009 \)) and paternal non-optimal/maternal non-optimal bonding combinations (OR: 1.72, 95% CI: 1.10-2.68, \( P = 0.018 \)) compared with the paternal optimal/maternal optimal. However, no significant difference was found in the paternal optimal/maternal non-optimal (OR: 1.25, 95% CI: 0.61-2.58, \( P = 0.538 \)). To clarify these results, we have added text to the results, as follows: “The combination paternal optimal / maternal non-optimal was not significantly different (OR: 1.25, 95% CI: 0.61-2.58, \( P = 0.538 \))” (Line 275-276)

Comment 2:
Response 3: The authors "dichotomized the care and overprotection scores using tertile cut-points in consideration of the prevalence of chronic pain." As a result, the care cut of is 31 instead of 24 for fathers (33 instead of 27 for mothers) and the overprotection cut-off is 5 instead of 12.5 for fathers (4 instead of 13.5 for mothers). These numbers are quite different and potential implications should be highlighted in the limitation section. I would also be curious to learn what a comparison of the current findings to findings observed when using the conventional cut-offs would look like.
Response 2:

We thank the editor for the suggestions about these important points.

In our sample (Japanese general community dwelling people), the median scores for care and overprotection were more optimal than those of other studies targeting clinical samples. Therefore, when classifying into PBI 4 quadrants according to conventional cut-offs, the optimal bonding group included 467 subjects (61.4%) for paternal bonding and 489 subjects (64.3%) for mother and the affectionless control group included 141 subjects (18.6%) for paternal bonding and 112 subjects (14.7%) for maternal bonding. This seems to have increased the deviation in the number of each group and to limit the statistical power. Considering the above, we used different cut-offs. However, further studies are needed in regards to appropriate cut-off points in consideration of chronic pain in the general population.

When using conventional cut-offs, the ORs were as follows: For paternal bonding they were 1.51 (95% CI: 0.97-2.35, $P = 0.068$) for “neglectful parenting”, 1.41 (95% CI: 0.81-2.44, $P = 0.224$) for “affectionate constraint”, 1.59 (95% CI: 1.09-2.30, $P = 0.017$) for “affectionless control” and for maternal bonding they were 1.07 (95% CI: 0.70-1.64, $P = 0.746$) for “neglectful parenting”, 1.57 (95% CI: 0.89-2.77, $P = 0.123$) for “affectionate constraint” and 1.67 (95% CI: 1.10-2.52, $P = 0.016$) for “affectionless control”.

We have added text to describe this as a limitation in the discussion as follows: “Fourth, most of the previous studies using PBI quadrants targeted relatively small clinical samples with mental problems. The available data on the distribution ratio of PBI quadrants in general population is limited. In most of these studies, assignment to high or low categories was conventionally based on the following cut-points: low care 24 for fathers and 27.0 for mothers and high overprotection 12.5 for fathers and 13.5 for mothers. These cut-points were determined on the basis of the mean scores of non-clinical Australian samples matched with depressive patients (reference 36). However, given the differences in culture and study population, it is not necessarily appropriate to apply the above-mentioned cut-points to the Japanese general population. Therefore, we used different cut-points based on this population. Further studies are needed in regards to appropriate cut-points in consideration of chronic pain in the general population.” (Line 342-353)
Minor comments:

Comment 3:
*Line 221: delete one ‘that’.*

Response 3:
According to the suggestion, we have deleted one “that”. (Line 222)

Comment 4:
*Fig 2: The figure titles "P for trend = 0.22" etc. are confusing. What does "for trend" mean in this context?*

Response 4:
To clarify the meaning of “for trend”, we have added an explanation to the Figure 2 legend as follows: “P for trend: P value of the test for linear relationships between the parenting categories and chronic pain prevalence.” (Line 517-519)