Reviewer's report

Title: Polyunsaturated fatty acids and child neurodevelopment among a population exposed to DDT: a cohort study

Version: 2 Date: 29 Jan 2019

Reviewer: Anna Choi

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A portion of the dataset layout that the authors provided in the response was informative in the understanding of the model setup. However, the method for the multivariate linear mixed-effects model (in the Statistical analysis section) still needs further revision.

(I) The model on page 8, line 167:

1. The interaction term should not include Xiβ, the covariates

2. In addition, β for Xi should be indexed differently than β for BayleyScalesi and PUFAi to indicate that each of the β estimates is different. As is currently written, it is confusing as the same β was used for the different variables. Refer to the notations used in the authors' updated reference, Baldwin et al. (2015).

3. Baldwin et al. (2015) use 0 and 1 as the indicator variables for the 2 outcomes, and demonstrated that plugging in the appropriate value of the indicators will yield the single model (with both outcomes) that they proposed (equations 11, and the verification of equations 12 and 13 with equations 1 and 2). Thus instead of using the value of 1 and 2 for the Bayleyscalei, which is an indicator variable, perhaps adapting similar notations as Baldwin et al. would help the readers to better understand the set-up of the model. In addition, using a different variable name (instead of Bayleyscalei) can avoid the confusion that the variable is not the "outcome", but rather it is an "indicator variable" of the outcomes.

(II) Although no significant associations were found on the DDE serum levels and neurodevelopment, because the cohort was from a population exposed to DDT, it would still be informative for the readers to have a general idea of how correlated the PUFAs and serum DDE levels were (and hence explained in part the significance or lack thereof of the associations). A supplementary table reporting the correlations or a brief summary in the text to report the range of correlations would suffice.
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