Author's response to reviews

Title: Birth and Developmental Correlates of Birth Weight in a Sample of Children with Potential Sensory Processing Disorder

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Author's response to reviews: see over
Dear Dr. Crow:

Thank you for providing us with an opportunity to undertake a minor revision of our manuscript (MS: 2054094156684772) “Birth and Developmental Correlates of Birth Weight” now entitled “Birth and Developmental Correlates of Birth Weight in a Sample of Children with Potential Sensory Processing Disorder” for publication in the BMC Pediatrics as a Research Article. We truly appreciate the referees’ careful comments and suggestions. We have followed the suggestions of the referees. Consequently, the manuscript is clearer.

Based on the reviews, we made several main changes to the manuscript. As suggested by Referee 1, we specified in the title and in the purpose of the study as stated in the introduction and discussion that the study sample was focused on a group of children identified as or suspecting of having sensory processing disorder. Based on recommendations by Referees 2 and 3, we addressed the conceptual problem with using gestational age classification as a category given that birth weight was considered in creating this classification. The text and tables now read “gestational age classification considered with birth weight.” We also removed the stepwise regression analyses from the results section due to referees’ concerns with the inclusion of birth weight as both a predictor and outcome variable. Last, the last author now has a name change is Elizabeth G. Munsell (formerly Elizabeth G. Schweiger).

Below, we describe how we have addressed each of the concerns raised by the reviewers.

REFEREE 1: Rosemarie Bigsby

We were glad that the referee appreciated that we “have taken care to address all the concerns raised by the reviewers.” We greatly appreciate the time and careful consideration that the referee provided. We hope we have addressed the referee’s concerns.

1- The title is too broad, and may be misleading because the study sample are all children identified as potentially having sensory processing disorder.
We thank the referee for this comment. We have addressed this concern by changing the title to “Birth and Developmental Correlates of Birth Weight in a Sample of Children with Potential Sensory Processing Disorder.”

2- The authors should change their purpose statement on p. 10 to include a statement such as, “in a retrospective, convenience sample from a clinic population identified as or suspected of having sensory processing disorder.”

We have added the statement suggested by the referee both to the purpose statement on page 10 and to the purpose statement on page 4.

3- The authors have not noted whether the milestones of the children born at LBW and ELBW are corrected for prematurity.

We thank the referee for this important comment. The milestones for these children are corrected for prematurity. We have now included this clarification on page 5 in the middle of the second paragraph by adding the following statement, “Milestones for children born at LBW and ELBW were corrected for prematurity.”

4- The authors state that all 39 infants of LBW were SGA.

We appreciate the referee’s comment, and we understand why the referee is concerned by our response. However, we based our groups on standard criteria for each birth weight and gestational age category, and our response was based on those criteria. We consider the possibility of this unusual number to be due to the fact that our sample was drawn from a group of children with possible sensory processing disorder. It is possible that our numbers would have differed if we had sampled from a general population.

5- On p. 4 in the second paragraph, the authors state that they studied how birth weights are affected by birth history and developmental milestone achievement. Didn’t they actually report the opposite?

We have clarified our statement on p. 4 by stating that we examined, “possible associations between birth weight and birth history (i.e. related birth complications) as well as developmental milestone achievement in a sample of children with or suspected or having sensory processing disorder.”

6- The individual LBW samples are too small to be able to draw conclusions about the relationship between their birth weight status and their developmental milestone achievement.

We agree with the referee and removed these children from our analyses in the previous revision of the manuscript. We recognize the importance of conducting studies that include infants with birth weights that make them likely to experience significant medical involvement. However, due to the retrospective nature of the
study, we were not able to include more children who fell into these categories. We feel that this information is useful for identifying areas of interest for future study.

REFEREE 2: Nicoletta Salerni

We appreciate the referee’s suggestions and were pleased that the referee thought that the manuscript was “clearer from a methodological point of view.” We hope we have addressed the referee’s concerns.

1- I think that the authors intend that the infants (and not the gestational age) can be classified according to both their birth weight and gestational age.

We have clarified this statement, which now reads, “Infants can be classified according to how typical their weights are for their gestational age compared to infants of the same sex.”

2- In terms of the aim of the study, it would be better to refer to possible associations between birth weight and the other conceptual variables.

We thank the referee for this comment. We have revised the final sentence of the introduction to read, “The purpose of this study was to examine possible associations between birth weight and birth history (i.e. related birth complications) as well as developmental milestone achievement in a sample of children with or suspected of having sensory processing disorder.”

3- The label “Gestational Age Classification” is not appropriate and it must be changed in the text and tables.

We appreciate the referee’s careful comment. We have changed the text and tables to refer to “Gestational Age Classification Considered with Birth Weight.”

4- It should be specified that Pearson’s correlation between birth weight and children’s age at evaluation was also conducted with the other measures taken into consideration.

We thank the referee for this comment. We did conduct a Pearson’s correlation between children’s age at evaluation and all of the other variables. We have clarified the statement under analyses to better reflect this. It now reads, “To test whether parents’ responses differed according to their children’s age when developmental histories were completed, a Pearson’s correlation was run to examine the relationship between children’s age at evaluation and each variable.”

5- The authors’ claimed that larger birth weights for HBW children were correlated with earlier independent sitting, but the correlation value is positive. The n value given for the correlation between birth weight category and eating solids for NBW infants refers to the n for LBW infants.
We thank the referee for commenting on these oversights. The correlation is negative. We originally omitted the negative sign and have corrected the correlation so that it is now negative. We have also fixed the n reported for the next correlation from 17 to 222.

6- Note that the item “drinking from a cup” does not appear in the analyses concerning developmental milestones. The authors should explain why.

We chose to include the developmental milestones that were most relevant for function given this sample. In previous analyses, this item was not shown to be related to any of the variables that we studied. Therefore, it was parsimonious to omit it from our analyses. To avoid confusion, we have eliminated this item from Table 1.

7- The statistical analyses under the regression section are unnecessary.

We are appreciative of the referee’s comments about predictor parameters. We have consequently omitted the regression analyses from the manuscript.

8- The titles of the tables (4A and 4B) must be changed by also referring to the Onset Age.

The titles of tables 4A and 4B have been changed to include onset age.

REFEREE 3: Andrea F. de Winter

We were pleased that the referee thought that we “improved the manuscript by choosing another focus.” We appreciate the feedback that the referee provided. We hope we have addressed the referee’s concerns.

1- Due to the small n ELBW and VLBW were excluded in the analyses. I would not mention those groups in the abstract.

We agree with the reviewer. We have removed the ELBW and VLBW groups from the abstract since they are not included in the analyses.

2- The purpose is described differently in the introduction and in the discussion.

We have revised the statements about the purpose at the end of the introduction and at the beginning of the discussion so that the meanings are aligned.

3- The authors state that the response rate was 1,000, but the response rate is a result of dividing the number of people who participated by the total number of people in the sample who were eligible to participate.
We thank the referee for this comment. We intended to indicate how many responses we received. Therefore, we have clarified our statement about the total number of responses that we received by removing the word “rate.” The sentence now reads, “Data for this study were collected as part of a larger study with a total of 1,000 responses, which examined the incidence of pre-, peri- and post-natal factors in children identified with sensory processing problems.”

4- The analyses were restricted to those for whom data (e.g. birth weight) were available. I would reformulate the sentence “the response rate for the current study was lower.”

As suggested by the referee, we have rewritten the sentence by removing the word rate and by indicating that only those with available data were included. The sentence now reads, “In the current study, we only included participants with recorded birth weights.”

5- Are there (significant) differences among children with and without information on birth weight (given the larger sample of 1,000 children)? For example do they differ with respect to the prevalence of prematurity or intensive care hospitalization?

We thank the referee for this important and insightful comment. We re-checked the data and conducted chi-squared analyses to compare the prevalence of prematurity or ICU hospitalization. We did find a significant difference for prematurity; children with birth weight information had a higher rate of prematurity (19%) compared to children with no birth weight information (14%); ($\chi^2(2, N=1,000)=12.42, p = .002; d =0.22$). However, the effect size was quite small. In contrast, we did not find a significant difference for the prevalence of ICU hospitalization between those with (12%) or without (12%) birth weight information ($\chi^2(2, N=1,000)=2.46, p = .29; d =0.10$). Therefore, although the referee’s question is valid and it is difficult to know for sure because of the retrospective nature of the study, we do not feel that asking whether babies were full term introduced more missing data because the difference in terms of prematurity had a small effect size and was not associated with differences in the prevalence of ICU hospitalization.

6- Please describe all relevant variables in the method section.

We have clarified the independent and dependent variables in the analysis section at the end of the method section.

7- How was SGA and LGA defined? For example did you use growth charts to define SGA?

Yes, we used growth charts to define the gestational age classifications. We have now added a sentence to the method section, which reads, “Gestational age classifications were based on growth charts.”
8- The linear regression analyses are not clearly described in the method section. Furthermore, predicting birth weight (dependent variable) from birth weight category and onset ages for developmental milestones seems odd. Birth weight and birth weight categories are based on the same information. Birth weight could be a predictor of developmental milestones later in life.

We are appreciative of the referee’s comments about the linear regression analyses. We have consequently omitted the regression analyses from the manuscript.

9- Type of birth complications are reported but not the prevalence of the birth complications in Table 3A and 3B. It would be informative to add this information. Furthermore, I would anticipate on the fact that some people prefer informative tables. Although the (non)significant results are described in the text, I would include it in the tables.

As suggested by the referee, we have included the prevalence of birth complications in Tables 3a and 3b. To simplify the presentation of the results in the tables, we have not indicated which results are nonsignificant in the tables. We are concerned that this would make the tables less accessible to readers. Instead, we have attempted to provide raw data for the dependent variables (birth weight) in each of the relevant tables for the reader to observe differences (or lack thereof) among the groups based on birth weight category or gestational age classification.

10- It might be more relevant/informative to describe different subgroups of birth weight categories (taking into account prematurity and SGA/AGA/LGA) for the developmental milestones than presenting the results for birth weight categories and gestational age classification separately. Due to potential heterogeneity in the birth weight groups and gestational groups, I am not sure if the discussion and conclusion are fully supported by the data.

We appreciate the referee’s comment, and we understand why the referee is concerned by how we chose to analyze the data. However, we based our groups on standard criteria for each birth weight and gestational age category, and our response was based on those criteria. The study is descriptive in its aim to investigate possible associations between birth weight and birth history (i.e. related birth complications) as well as developmental milestone achievement in a sample of children with or suspected or having sensory processing disorder. Although we thank the referee for suggesting that we use gestational age classification as a covariate, we feel that this would be most appropriate in a prospective, follow-up study in which we have control over the sample and the number of children represented in each sample. For a retrospective study, we felt it most appropriate to describe the results that we found based on the sample that we had. In addition, we consider the possibility of this heterogeneity to be due to the fact that our sample was drawn from a group of children with possible sensory processing disorder. It is possible that our numbers would have differed if we had sampled from a general population. With respect to whether the discussion and conclusion are fully supported by the data, we feel that our statements
about the limitations of the study acknowledge the conclusions that can be made based on 1) the retrospective nature of this study, which did not allow us to control how many participants were represented in categories based on sex, birth weight category, gestational age classification considered with birth weight, the presence of incomplete histories, or what parents’ exact definition of the onset of milestones were and 2) the fact that we sampled our data from a clinical population, which may limit the generalizability of our findings. We do feel that our study provides important information on describing this population of children with sensory processing disorder.

Again, we thank the referees for their great help and thoughtful comments. We believe that the manuscript presents a unique perspective on how birth weight relates to birth history and the onset age of developmental milestone achievement for a population of children with sensory processing disorder. We hope that the revised manuscript is now suitable for publication in *BMC Pediatrics* as a Research Article.

Thank you.

Regards,

Simone V. Gill