Author's response to reviews

Title: Television viewing in Thai infants and toddlers: impacts to language development and parental perceptions

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Author's response to reviews: see over
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“Television viewing in Thai infants and toddlers: impacts to language development and parental perceptions”.

Dear Professor Norton,

Thank you very much for sending us the very helpful and constructive comments from the reviewers regarding the above manuscript. I have attached the revised manuscript which includes a detailed report of how we addressed each of the reviewer’s comments. We hope that our response have satisfactorily answered all the queries by the reviewers. We are grateful to you for providing us with an opportunity to reply to the reviewers.

Yours sincerely,

Nichara Ruangdaraganon

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Reviewer: Simon Rueckinger

1. The use of multivariate logistic regression analysis should be stated in the methods section of the abstract.

We thank the reviewer for the comment above. In the new Abstract, we have included the use of multivariate logistic regression analysis, as suggested by the reviewer. This is shown on page 2 of the revised manuscript and is highlighted for the benefit of the reviewer.

Page 2
Association between delayed language development and time spent on television viewing, as well as other various parameters such as gender, maternal education and family income, were analysed using a multivariate logistic regression model.

2. The second sentence of the heading for Table 1 could be more precise. I would suggest: “Adjusted odds ratios with 95% confidence intervals were calculated using multivariate logistic regression adjusting for all factors presented in the table”.

In the revised manuscript, we have changed the second sentence of the heading for Table 1, as suggested by the reviewer.

Page 21
Table 1: Associations between delayed language development at the age of 2 years and various parameters. Adjusted odds ratios with 95% confidence intervals were calculated using multivariate logistic regression adjusting for all factors presented in the table.

3. In Table 1 the reference categories for the odds ratios should be pointed out. For the factor gender this would be ‘female’, i.e. boys having a 6.9
fold increased odds of delayed language impairment, compared to girls. This could be achieved by e.g. placing an odds ratio of 1 in the ‘female’ row. The same applies for all other factors in the table.

In Table 1, we have included the reference for the odds ratios of each variable as suggested by the reviewer.

4. In Table 1 the star indicating statistical significance for gender is redundant since this can already be seen from the 95% CI for the odds ratio not including 1.

The star in Table 1 has been removed.

5. Wording suggestion, Methods page 8: Association between delayed language development and time spent on television viewing, as well as other various parameters, were analysed using a multivariate logistic regression model. Odds ratios and 95% confidence intervals were reported.

We have modified this sentence, as suggested by the reviewer.

Page 8
Association between delayed language development and time spent on television viewing, as well as other various parameters, were analysed using a multivariate logistic regression model. Odds ratios and 95% confidence intervals were reported.

6. Wording suggestion, Methods page 9: On multivariate analysis, only gender was significantly associated with delayed…

The sentence in Method on page 9 has been changed, as suggested by the reviewer.

Page 9
On multivariate analysis, only gender was significantly associated with delayed language development (OR = 6.9, 95% CI = 1.5-31.3).

**Reviewer: Heidi M. Feldman**

The authors have chosen to use one scale from the Denver-II as part of the diagnosis of language delay. The Denver-II should not be used in this way. It is a screening test. It is designed to indicate who is at high risk of developmental delay, not who is delayed. You must administer the entire test. Then you get one of three results: pass, fail, or indeterminate. In other words, the determination of high risk status requires administering all of the scales and determining if the child fails the test. You cannot use the Denver-II to specify the domain of delay. Children may fail the Denver-II because they are suspect in the motor and fine-motor adaptive scales, but a comprehensive assessment finds that delays exist in domains of cognition and language. In addition, the Denver is notably insensitive in the area of language. That is one reason it has fallen out of favour for developmental screening.

The above comments from the reviewer are very useful. We agree that the Denver-II cannot be used to screen the children with particular delayed language development. As a result, in the revised manuscript, we have removed all data and results from the Denver-II in detection of delayed language development. The delayed language development is assessed by the modified CLAMS. The definition of language delay is shown on page 7 and is highlighted for the benefit of the reviewer.

**Page 7**

Assessment of delayed language development was carried out by using standardized instrument, modified Clinical Linguistic Auditory Milestone Scale (CLAMS) [16]. The CLAMS was modified to fit Thai cultures and was translated from English into Thai. All administrators using the modified CLAMS received training by the developmental and behavioural paediatrician and were supervised during its administration. “Delayed language
development” was documented when the child failed all items at the 21 months of age.

The CLAMS is a good choice for a study like this one because it is not only a screening test. It can be used to assess children in terms of language development. The CLAMS generates a Developmental Quotient, or DQ, with a mean is 100 and standard deviation of 15. However, the authors are not reporting the children’s scores. It would be much better to use the DQ scores for the participants rather than a categorical definition of language delay. First, it is an appropriate use of the tests. Second, the authors can use multiple linear regression analyses for their statistics and improve their power. If the DQ scores are available, my strong recommendation would be to drop the Denver-II from the results and report only on the CLAMS DQ.

What if the DQ cannot be generated? The use of a single item from the CLAMS to determine language delay is problematic. The ability to point to two pictures is but one of three items at 21 months of age. Proper administration of the test requires beginning below the child’s age, giving all of the items in an age bracket, establishing a basal level as that age bracket in which all items are passed, and then testing to a ceiling level, an age bracket in which none of the items are passed. For a child of 24 months of age, you start by administering the 18 month items and proceed until the child failed all items within an age block. If a child fails all three items at the 21 months age level, then the DQ would be less than or equal to 75, a reasonable definition of language delay. If the child passed the other two items within that age bracket and none of the items at 24 months of age, then the DQ is 83, greater than one standard deviation below the mean and again a reasonable definition of language delay. Unfortunately, it is possible that a child could fail to point to two pictures and then pass items at the 24 month level. In that case, the child would not be delayed.
In the study, we do not have information on the CLAMS at 18 months and 24 months of age. As a result, we are not able to report the CLAMS DQ. At 24 months old, we administered the 21-month items and if the child failed all items within this age block, then the child was diagnosed of language delay. We have kept in mind this limitation, which may affect a number of children with delayed language development reported in this study. We have addressed this issue in the discussion section on page 10 in the revised manuscript. This has also been highlighted for the benefit of the reviewer.

**Page 10**

In this study, modified CLAMS was used to identify children with delayed language development. Different cultures may also limit the use of original CLAMS in identifying children with delayed language development. We have also concerned that administering only the items at 21 months of age may affect a number of children with delayed language development reported in this study.

The authors are identifying only 5% of their sample as delayed at age 2 years. That is a low percentage compared to other studies.

We thank the reviewer for the comments above. In our study, 16 of the 203 two-year-old children had “delayed” language development, this was 7.9%. Although, the percentage of children with delayed language development in our study was low, it was compatible with other previous study, where the prevalence of language delay ranged from 2.3% to 19% in preschool- aged children [1-4]. As discussed previously, administering only the 21-month items may result in a low percentage of children with language delay.

In addition, maternal education and monthly income are not associated with language development at age 2 years. In US samples, the association of language with socioeconomic status is quite strong. I worry that these findings mean that their methods may not be adequately sensitive to identifying delay.
We did not find the association of delayed language development and socioeconomic status. This is probably due to our sample population was ascertained through two institutions from certain geographical areas of the country (Bangkok). Therefore, this population may not be representative of the Thai population and might affect the association between delayed language development and socioeconomic status. We have addressed this concern in the Discussion section of the revised manuscript and have been highlighted on page 12.

Page 12

The study found no association between maternal education and monthly family income and delayed language development, which was inconsistent with other studies [25-27]. This is probably due to our sample population was ascertained through two institutions from certain geographical areas of the country (Bangkok). Therefore, this population may not be representative of the Thai population and might affect the association between delayed language development and socioeconomic status.

Reference List


