Author's response to reviews

Title: Predictors of effectiveness of early intervention on children with intellectual disability: A retrospective cohort study

Authors:

Der-Chung Lai (cych02315@gmail.com)  
Chung-Hsin Chiang (chchiang@nccu.edu.tw)  
Yu-Ming Hou (02151@cych.org.tw)  
Jiun-Horng Liu (eternityliu2001@yahoo.com.tw)  
Shu-Fen Yao (03500@cych.org.tw)  
How-Ran Guo (hrguo@mail.ncku.edu.tw)  
Yen-Cheng Tseng (yvonneyc@ yahoo.com)

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Author's response to reviews:

Dear Editor,

Thank you for your instructions on the revision of our manuscript. Accordingly, we added a subtitle “A retrospective cohort study” to the original title “Predictors of effectiveness of early intervention on children with intellectual disability.” The responses to the reviewers’ comments are as following:

Reviewer #1

Major Compulsory Revisions

Comment 1: Present a graph showing each pair of measurements. If emphasis is to be on the distinction between low maternal education families and others, then either present on separate graphs or demonstrate with different bars (dotted vs. thin solid, etc.).

Response: As suggested by the reviewer, we added the graphs presenting changes by both maternal education level (Figure 1) and gender (Figure 2) to the revised manuscript in colors.

Comment 2: Demonstrate that the significant metric is age at testing rather than time interval between tests.

Response: As suggested by the reviewer, we used the median of the time interval as the cutoff and separated the participants into two groups. We found the effects (IQ2-IQ1) were quite similar (7.9 vs. 8.4, p = 0.975) and thus believe that the significant metric is age at testing rather than time interval between tests. We added the data to Table 1 in the revised manuscript.

Comment 3: Include gender as a variable.

Response: As suggested by the reviewer, we conducted further analyses of the data by including gender as a variable. We found a significant difference in the
effects (IQ2-IQ1) between the two genders and therefore conducted further regression analyses. However, because gender and maternal education level had a significant positive correlation (r=0.362, p=0.030), we conducted separate multivariate regression analyses for gender instead of including it in the model together with maternal educational level. Accordingly, we added the results and related discussion to the revised manuscript.

Comment 4: Distinguish between verbal and performance scores.
Response: While this might be a topic of interest to some researchers, in general practice, early intervention is to promote the development as a whole instead of focusing on verbal or performance specifically. Besides, with the current contents, two of the three reviewers suggested condensing the manuscript, which discourages us to include further analyses in the revised manuscript. In response to the reviewer’s comment, we changed the second last sentence in the Discussion of the revised manuscript to “…further follow-ups are necessary to evaluate the long-term effects and effects on verbal and performance separately.”

Minor Essential Revisions
Comment 1. IQ scores in abstract are reversed.
Response: We thank the reviewer for pointing out the error and have corrected it in the revised manuscript.

Comment 2. Present analytic results in the text and the tables in the same order.
Response: As suggested by the reviewer, we changed the order of the results in the text in the revised manuscript.

Comment 3. Add a vertical line in Table 1 to separate the results of the analyses of the means from the results of the analyses in the changes in the IQ scores.
Response: As suggested by the reviewer, we added a vertical line in Table 1 to separate the results of the analyses of the means from the results of the analyses in the changes in the IQ scores in the revised manuscript.

Comment 4. Demonstrate more clearly to what the Table 1 p-values apply.
Response: As suggested by the reviewer, we put footnotes “a” for p values obtained through Wilcoxon signed ranks test or paired t test and “b” for p values obtained through Mann-Whitney U test in Table 1 in the revised manuscript.

Discretionary Revisions
Comment: Tighten and focus the discussion.
Response: As suggested by the reviewer, we cut more than 100 words in the Introduction, more than 80 words in the Methods, more than 60 words in the Results, and more than 170 words in the Discussion of the original manuscript.

Reviewer #2
Major Compulsory Revisions
Minor Essential Revisions

Comment: Abstract – Results Sub-heading, second sentence: “The IQ increased from 65.1±12.3 to 57.0 ± 8.0 (p<0.001) {Is this not suppose to be the other way round, i.e. 57.0 ± 8.0 to 65.1 ± 12.3 (p<0.001)?}.

Response: We thank the reviewer for pointing out the error and have made changes in accordingly in the revised manuscript.

Discretionary Revisions

None

Reviewer #3

Major Compulsory Revisions

Comment: Is a quasi-experimental approach or propensity score matched control feasible? Alternatively the authors could focus exclusively on sub-group variation within the early intervention group. As an epidemiologist, I’m not as familiar with the use of IQ test as a standard measure of development, but am concerned about its ability to measure development.

Response: As the reviewer recognized, due to ethical reasons there is no way to withhold treatment and thus create a suitable control group. In fact, for that reason, it is not feasible to conduct any experimental studies, and therefore we have to use observational study designs. On the other hand, since the effectiveness of early intervention has been widely recognized, we did not plan to evaluate whether early intervention is effective or not. Instead, as stated in the Introduction, we aimed at addressing four important issues related to early intervention. IQ is a standard measure of development, and it has been widely used to measure development. In the Introduction (the fourth paragraph) of the original manuscript, we had stated that “There are many ways to evaluate the effectiveness of early intervention on children with ID, and IQ tests are the most frequently applied [11-14].” Specifically, it was the most frequently used measure in both of the meta-analysis on efficacy of early intervention by Casto & Mastropieri (1986, Reference 11; used by 81 studies) and by Shonkoff & Hauser-Cram (1987, Reference 12; used by 46 studies). References 14 (Ramey & Ramey, 1998) also used IQ to evaluate the effectiveness of development.

Minor Essential Revisions

None

Discretionary Revisions

Comment: I think it could benefit from editing and ‘tightening’.

Response: In response to the reviewer’s comment, we have edited and shortened the manuscript.

We have addressed all the reviewers’ comments and believe the manuscript is of interest to your readers. We hope you find our responses satisfactory. If you
have any further requests, please do not hesitate to contact me.

Sincerely,

Yen-Cheng Tseng