

Author response to: Cardiovascular risk factors in offspring exposed to gestational diabetes mellitus in utero: systematic review and meta-analysis

Letter to the Editor

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Address for correspondence:

Prabha Andraweera, Robinson Research Institute, Adelaide Medical School, The University of Adelaide, Adelaide, SA, Australia.
Email: prabha.andraweera@adelaide.edu.au

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Maleesa M. Pathirana^{1,2} , Zohra S. Lassi¹ , Claire T. Roberts^{1,3}  and Prabha H. Andraweera^{1,2} 

¹Adelaide Medical School, Robinson Research Institute, The University of Adelaide, Adelaide, SA, Australia; ²Department of Cardiology, Lyell McEwin Hospital, Elizabeth Vale, SA, Australia and ³Flinders Health and Medical Research Institute, Flinders University, Bedford Park, SA, Australia

Abstract

This commentary is an author response to Yu and colleagues regarding the manuscript entitled ‘Cardiovascular risk factors in offspring exposed to gestational diabetes mellitus in utero: Systematic review and meta-analysis’. We address their concern regarding minor errors in our manuscript, our search strategy and assessment of heterogeneity.

Dear editor:

We thank Yu and colleagues for their comments regarding our systematic review and meta-analysis on cardiovascular disease in offspring exposed to gestational diabetes mellitus in utero.¹ Their comments highlight important considerations regarding study quality, statistical analyses, and search strategy for systematic reviews and meta-analyses.

Thank you for the recommendation on databases that can be used in the process of literature retrieval in the future update of this review. We used PubMed CINAHL, SCOPUS, and EMBASE with an end of search date of April 18, 2018. Subsequently, we updated the literature search to include all relevant articles published until October 17, 2018. Our systematic review only had peer-reviewed full-text published papers. However, we will search the recommended databases, particularly grey literature databases, in our future update of this systematic review.

We thank Yu and colleagues for identifying two typographical errors, and we acknowledge that the total number of participants in the BMI Z score analysis is 31,485 instead of 8759 as stated in the manuscript and that the chi-squared p-value in figure 4 is < 0.00001 instead of 0.00001.

The heterogeneity of the analyses was indeed significantly high, and we did report this in our discussion section as a significant limitation. We could not perform subgroup analyses based on age in this review as there were not enough studies with varying follow-up times to assess this. However, we did plan a subgroup analysis of time to follow-up at <1 year postpartum, 1–5 years postpartum, 5–10 years postpartum, and 10+ years postpartum to assess heterogeneity. We proposed to perform subgroup analyses in our PROSPERO registration (CRD42018094983). However, these analyses were also not undertaken as there were insufficient publications to conduct meaningful comparisons. It would be beneficial to complete other subgroup analyses for future updates of this review. Other meta-analyses completed by our research group with a greater number of studies and sample size included subgroup analyses stratified by age, ethnicity, the definition of GDM, and metabolic syndrome.^{2,3} We have planned for meta-regression in our next update of this systematic review.

We did perform sensitivity analyses for all the outcomes in which we removed low-quality studies and reported the outcomes before and after the sensitivity analyses in Supplementary Tables S3–S5. We found no significant difference based on the sensitivity analyses, and heterogeneity remained high but the effect size of the outcomes remained unaffected. In our future update of this systematic review, we will consider other avenues, including meta-regression to explore heterogeneity in the data, as mentioned in a previous letter to the editor.⁴

We appreciate the comment from Yu et al. regarding the use of ‘Begg’s Test’ or ‘Egger’s Test’ for publication bias. We assessed publication bias using Egger’s test and prepared funnel plots for all of our outcomes and they are provided in the supplementary file.

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Conflicts of interest. None.

References

1. Pathirana MM, Lassi ZS, Roberts CT, Andraweera PH. Cardiovascular risk factors in offspring exposed to gestational diabetes mellitus in utero: systematic review and meta-analysis. *J Dev Orig Health Dis.* 2020; 11(6), 599–616.
2. Pathirana MM, Lassi Z, Ali A, Arstall M, Roberts CT, Andraweera PH. Cardiovascular risk factors in women with previous gestational diabetes mellitus: a systematic review and meta-analysis. *Rev Endocr Metab Disord.* 2020; 22(4), 729–761.
3. Pathirana MM, Lassi ZS, Ali A, Arstall MA, Roberts CT, Andraweera PH. Association between metabolic syndrome and gestational diabetes mellitus in women and their children: a systematic review and meta-analysis. *Endocrine.* 2021; 71(2), 310–320.
4. Pathirana MM, Lassi ZS, Roberts CT, Andraweera PH. Author response: cardiovascular risk factors in offspring exposed to gestational diabetes mellitus in utero: systematic review and meta-analysis. *J Dev Orig Health Dis.* 2020; 11(3), 244–245.