Reviewer's report

Title: Group-based developmental BMI trajectories, polycystic ovary syndrome, and gestational diabetes: a community-based longitudinal study

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Reviewer: Terhi Piltonen

Reviewer's report:

Authors Kakoly et al., have submitted a manuscript titled "Group-based developmental BMI trajectories, polycystic ovary syndrome and gestational diabetes: a community-based longitudinal study".

This is an important study where BMI trajectories were used to analyze the occurrence of GDM in women self-reporting PCOS and women not reporting PCOS. The study reveals that high BMI and having BMI long term in the high BMI trajectory is a risk for GDM. PCOS, on the other hand, seemed to be a BMI-independent risk factor for GDM but weaker than BMI itself. The data is important as it underlines the role of weight control in prevention of GDM and also highlights the fact that women with PCOS should be identified as they seem to present as a high-risk population for GDM. However, there are some limitation and questions that I would like to raise.

As self-reported data for GDM may be the weakest point of the data and it should also be mentioned in the limitation section. Did you validate the GDM diagnosis and reliability more profoundly? How about if only including women that reported GDM at least in two surveys? Were you able to confirm the reliability of the GDM diagnosis from hospital records? Did you make sure that women did not report DMT2 in same or especially previous questionnaire when reporting GDM as the meaning of GDM might be misinterpreted by the women answering the questionnaires?

As for imputation, can you report how many self-reported BMI values did you have in average per patient?
Would you have been able to look at the parity also as a continuous variable or making the groups more representative for the women with higher parity? Women are commonly having an average of 2 children in the western countries thus these women most likely are overrepresented in the "high parity group".

Although the study population seemed to correlate well with general Australian population, does the high number of university degrees still reflect the overall population in Australia? Can you comment on this?

It is interesting that women with PCOS did not show any difference in risk for GDM in different BMI trajectories. Why did you think that was? Independent effect of PCOS? Were the trajectory groups in PCOS overlapping to some extent or closer to each other than in controls or was there missing data? Can you elaborate on this?

Minor:
1) Abstract, background: too many "increase" words, can you pl rewrite
2) Ref 18, pl add ref Ollila et al., 2016 JCEM

Are the methods appropriate and well described?
If not, please specify what is required in your comments to the authors.

Yes

Does the work include the necessary controls?
If not, please specify which controls are required in your comments to the authors.

Yes

Are the conclusions drawn adequately supported by the data shown?
If not, please explain in your comments to the authors.

Yes
Are you able to assess any statistics in the manuscript or would you recommend an additional statistical review?
If an additional statistical review is recommended, please specify what aspects require further assessment in your comments to the editors.

I am able to assess the statistics

Quality of written English
Please indicate the quality of language in the manuscript:

Needs some language corrections before being published

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