Reviewer's report

Title: Socioeconomic disparities in prepregnancy BMI and impact on maternal and neonatal Outcomes and postpartum weight retention: the EFHL longitudinal birth cohort study

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Reviewer: Vigdis Aasheim

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REPORT TEMPLATE
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Title: Socioeconomic disparities in prepregnancy BMI and impact on maternal and neonatal Outcomes and postpartum weight retention: the EFHL longitudinal birth cohort study by Shu-Kay et al

This is a study aiming at identifying socioeconomic differences in prepregnancy body mass index, to quantify the impact of prepregnancy obesity on actual birth outcomes and to identify determinants of postpartum weight retention. The research question and objectives are well defined and it is potentially important topic given the increased incidence of overweight and obesity and its association with adverse birth outcomes. The findings from the study is already well known in the literature, but the authors state that this paper adds more specified knowledge to form a basis for targeted interventions. The abstract communicate the findings well.

Being overweight or obese was associated with socioeconomic status and adverse behavioral factors and obese women experienced more often gestational diabetes, preeclampsia and cesarean and their newborns more often intensive-and other admission, distress, resuscitation and macrosomia. The determinants of weight retention was fewer serves of fruit per day, not engaging in recreational activity with the baby, less walking and less time spent with friends while breastfeeding for more than 3 months reduced the likelihood of weight retention postpartum.

Data were obtained from a cohort study - a population based longitudinal study – to investigate relationship between social, environmental and behavioral factors and health and development of children. The women were recruited during antenatal visits and perinatal information was extracted from hospital records. The follow up at 12 months after birth included questions on the mother’s weight, breastfeeding, dietary and physical activity characteristics, the child’s health and development.

The discussion and conclusions is relatively well balanced, even if the discussion
focuses on interventions which of course is a next step, but is not adequately supported by these data which is about the identification of some problems and quantify adverse outcomes and determinants of weight retention.

The methods are appropriate and well described. The data has some limitations which are outlined by the authors but this is outweighed by the benefits. However, I have some concerns with the work which are outlined below for the author’s consideration.

Major compulsory revisions:

1. In the background, from line 19, the obesity problem is ‘easily’ explained as a result of adverse behavioral factors such as lack of knowledge, poor diet and inactivity. This is probably partly true, but I would expect more references to this statements and one of the references is also quite old? And one could also change the ‘is a result’ to have been shown to…..

2. The recruitment found place at 24 weeks of gestation. This made the comparisons of the baseline characteristics shown in table 1 troublesome. This is explained by in text from line 135: “Moreover, the percentage of low birthweight infants (<2500g) was approximately half that of babies born in the general population as prospective mothers were recruited towards the end of the third trimester. For the same reason, our sample did not include any infants born before 28 weeks gestation, and had a smaller proportion of infants born between 28 and 36 weeks gestation. Moreover, the percentage of stillbirths was smaller than in the general population”. And it is also mentioned as a limitation of the study. But when you read the table you anyway get the impression of big differences and my question is if it could be an idea to compare the two samples by including only children after gestational week 24 also in the sample of the deliveries in the region? Alternatively, make this limitation more visible, also in the table.

3. Representativity: The sample is recruited from an area representing 30% of Queensland’s population. Is the population representative for the rest of Queensland, or Australia according social representativity?

   The authors could also be more detailed in the description of the consequences of the relatively low participation rate – 43.8 % (=2254 women)- with the response rate being lower when including those who answered the BMI variable (=2009) and at 1 year follow up (1316 women).

4. Results: From line 143: …’These women and their partners were also more likely to be unemployed (p=0.038 and p=0.017)….’ When reading the table 2 it looks as if it is the opposite – among the underweight women 16% are unemployed and among the overweight 9.9 % is unemployed and 10.3 among the obese women.

5. The conclusion of the study focuses on the need for interventions…, but this is not really the conclusion of this study. The conclusion in the abstract seems more
precise to show the essence of this particular study.

Minor essential revisions
1. Line 115. (and also line 126) A clarification of what variables were adjusted for in the text would make this part easier to read.

Level of interest: An article whose findings are important to those with closely related research interests

Quality of written English: Acceptable

Statistical review: Yes, but I do not feel adequately qualified to assess the statistics.

Declaration of competing interests:
'I declare that I have no competing interests'