Author's response to reviews

Title: Postpartum behaviour as predictor of weight change from before pregnancy to one year postpartum

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Version: 4 Date: 7 January 2011

Author's response to reviews: see over
Dear editor,

Hereby we submit a revised version of the manuscript “Postpartum behaviour as predictor of weight change from before pregnancy to one year postpartum” (MS 1388253754411540).

We like the thank the reviewers for their useful and constructive comments. Our response to reviewers comments and the changes made in the manuscript are described below.

Kind regards, on behalf of all the authors,

Mireille van Poppel
Response to reviewers comments

Title:  Predictors of weight change from before pregnancy to one year postpartum.
MS: 1388253754411540

Reviewer Rachel Leach

We fully agree with the reviewer that from a public health perspective it is important to know whether overweight or obese women are more likely to retain weight substantially after pregnancy. However, we did not find differences in the likelihood to retain more weight after pregnancy between healthy weight and overweight or obese women. In the regression models, prepregnancy BMI was not related to weight retention, and this finding has been added to the results section.

Reviewer Karen Campbell

- The reviewers assumption that where no comments were made about the validity of measures, no data were available. The fact that measures were not validated has been added to the limitations of the study in the discussion.
- The manuscript has been checked for misspellings (including ‘weigh’), and corrected where necessary.
- We have rephrased the conclusions regarding breastfeeding, and just indicate that results reported in literature are equivocal. The reviewer is correct that it is a combination of exclusively and partially breastfeeding at 4 months.

Reviewer Anjel Vahratian

Major Compulsory Revisions:

1. We have tried to make it more clear in introduction and discussion how our study contributes to the literature.

2. We have expanded the section about recruitment of participants to make it more clear. The exclusion point of missing questionnaires has been made more clear as well, and this information has been moved to the results section, based on the recommendation of another reviewer.

For the further information of the reviewer: the municipal health service Amsterdam is responsible for blood analyses of pregnant women, testing for rhesus factor, and hepatitis and HIV infection in the region of Amsterdam. As soon as a woman visits as midwife or general practitioner early in pregnancy in the Netherlands, she is referred to give blood for testing at a central laboratory in the region. The municipal health service in Amsterdam has this function of central laboratory, has therefore a database of almost all pregnant women in the region of Amsterdam. This database is, however, not linked to birth outcomes or any other medical records. Participants in the database were selected based on due-date and received a letter explaining the study, in addition to the first questionnaire.

3. It is true that some of the data were collected retrospectively. However the data from 7 months pregnancy till 12 months postpartum was collected prospectively. We made sum scores of all the postpartum measures, in order to get a measure of the ‘average’ behaviour in that period. So we are not referring to behaviours at one specific time point, but to the average of all time points in the year postpartum.

Minor Essential revisions:

1. The comment about ‘insufficiently reliable questions for sedentary behaviour’ has been changed into a more specific explanation why we did not find a relation with sedentary behaviour in the discussion: “In our study, evidence for a relationship with sitting or resting time was absent, perhaps because we did not ask for a specific behaviour such as television watching, but the total time of sitting per day, which is probably more difficult to estimate.”
2. The cut point of 4 months postpartum for breastfeeding was chosen since this time point is the moment where many women stop breastfeeding in the Netherlands. We therefore felt this would be the most discriminating time point.

3. BMI cut off points: WHO cut off points were used, and this information has been added to table 1.

Reviewer Michelle Mottola

Major Compulsory Revisions:

1. We agree with the reviewer that from the text it was not clear whether we measured variable in pregnancy or postpartum. Therefore, in the title and the abstract we have clarified that all behaviours in the analyses were measured postpartum and not in pregnancy.

2. References have been added here.

3. Also in the background section, it has been clarified that all behavioural factors in this study were measured postpartum. The rationale for selecting the predictors has been added in the background section as well.

4. The section about the study sample has been moved to the results section. In the methods, information about what was done to increase response has been added. Women were followed up by phone and mail. Why the follow-up sample is so small, is not entirely clear, but we suspect that the thick questionnaire (mostly due to the food frequency questionnaire) was the reason many women did not respond to our invitation. Women who did not return the initial questionnaire could not be compared to the respondents, but as is indicated in the discussion, our sample is more Caucasian and higher educated than the average Dutch women in this age range. Women who missed returning one or more follow-up questionnaire were not different from other women.

5. Why we chose 5 kg as cut off point has been added to the background section. We chose change in kg instead of change in BMI since this is more easily to understand for health care workers, who look at changes in weight usually and not at changes in BMI in the period of pregnancy and postpartum.

Choosing a cut off of 2 kg might have changed the associations, and might have increased the power in the statistics somewhat. However, we felt a 2 kg change in weight over a 1.5 year period would not be ‘excessive’ since in the general population, weight gain among women of this age is about 0.6 kg per year. We wanted to use a cut off point that was clearly higher than this weight gain outside of pregnancy, and that would be useful in identifying women with significant weight shifts. Therefore, and also to be comparable with previous studies, we chose for the cut off point of 5 kg.

6. We did not have the opportunity logistically and financially to measure the women objectively, unfortunately. Women do not visit one centrally located health care organisation during pregnancy or in the postpartum period, and measuring them ourselves would have meant a large investment in time and money, which were both not available.

7. The covariates were also measured at 30 weeks of pregnancy, but this was not taken into account in these analyses, that only focussed on postpartum behaviour as predictors for postpartum weight retention. Behaviour in pregnancy, and how it was related to gestational weight gain has been described in another paper (Althuizen et al. Correlates of absolute and excessive weight gain during pregnancy. Journal of Women’s Health 2009;18(10):1559-1566). In the analyses presented in this manuscript, we only included total gestational weight gain, which we expected partially to be a resultant of behaviour in pregnancy.

Of course covariates changed over time in the year postpartum. We chose to pool data from all time points together because behavioural variables measured at the various time points were highly correlated. We did not want to look at the weight outcomes at other moments, but only at 12 months postpartum, since we believe that this is the most relevant outcome for weight and health outcomes later in life. An analysis strategy with a time lag (outcome at moment T is predicted by covariates measured at T-1) was therefore not an option we wanted for this research question.
An alternative would have been using the behavioural variables from the three time points as separate covariates in the model, but then we would have run into the problem of too much correlation between covariates. We thought that with averaging the data for the covariates over the three time points we would have a more solid and stable estimate of women's behaviour postpartum. This average behaviour is still a relevant factor to look at in terms of figuring out which factors should be targeted for intervention in the year postpartum.

8. We chose the 4 METs as cut off point, because in the Netherlands this is how the PA guidelines are formulated, somewhat in contrast to the 3 METs used elsewhere. Also the SQUASH is based on the cut off point of 4 METs for moderate PA. Since women are often advised not to resume their normal PA program before 6 weeks postpartum, and therefore we considered the guideline of sufficient PA not applicable at that measurement. During pregnancy and at the measurements conducted later than 6 weeks postpartum the PA guideline is applicable. Why measures were pooled was addressed at point 7.

9. None of the questionnaires were validated specifically for pregnant, or postpartum women. References of validations of instrument are mentioned in the text when available. In the discussion, it has been added that for many variables in our analyses, no validated instruments were available.

10. Yes we expect sleeping to be different between time points. However, as mentioned before, we decided to look at the ‘average’ behaviour in the first year postpartum, ant it’s relation with weight retention.

11. The cut point of 4 months postpartum for breastfeeding was chosen since this time point is the moment where many women stop breastfeeding in the Netherlands. We therefore felt this would be the most discriminating time point.

12. Participants reported on demographics in the questionnaire filled out at 30 weeks of pregnancy. The variables regarding work and marital status could theoretically have changed during the year postpartum, but in our study sample this did not happen much.

13. Prepregnancy BMI groups were defined according to WHO criteria, and this has been indicated in Table 1. Excessive weight gain during pregnancy was based on IOM criteria. Changes in weight from 6 weeks to 12 months postpartum are shown in the figure we added.

14. The pooling of the data of the three time points has been explained earlier. In Table 2, 26 and 52 weeks pp has been changed into 6 and 12 months pp, to make it more consistent with the text.

15. We have rewritten parts of the discussion. By adding a sentence about the purpose of the study at the beginning of the discussion, we hope that we have clarified this part.

16. We did not report on other food groups, since we felt it was unlikely they would be related to weight changes.

17. We did not use medical records, since we had no informed consent to do so, and would have had to access medical records in over 20 midwife practices and hospitals, which was logistically not feasible.

18. We looked carefully at the formulation of the conclusions again.