Author's response to reviews

Title: Reducing postpartum weight retention - a pilot trial in primary health care

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Author's response to reviews: see over
We are grateful for the reviewers for their relevant and helpful comments. The comments have been taken into account when revising the manuscript. The manuscript has been checked for grammatical errors by a language consultant. We feel that the manuscript has been improved as a result.

Response to Rena R Wing

1) In the title, the word “pilot” is now used instead of the word “controlled”.

2) The dietary objectives were based on the Finnish and Nordic dietary recommendations (Hasunen et al. 2004, Nordic Council of Ministers 2004). They are also in concordance with the WHO report (WHO 2003), which summarizes the evidence for prevention of excessive weight gain and obesity. According to this report, there is convincing evidence that a higher intake of energy-dilute foods (such as vegetables and fruits) and foods high in fiber (such as whole grain cereals) as well as a lower consumption of energy-dense foods and drinks (e.g. foods high in sugar) contribute to a reduction in total energy intake, which is beneficial for weight loss. We have added this WHO reference on page 8, lines 1-2 as follows: “…a summary of the evidence for prevention of excessive weight gain and obesity (WHO 2003)…”

In addition, information on the current average diet of Finnish women was utilized in the selection of the topics of the dietary counseling (Männistö et al. 2003). The consumption of vegetables, fruits and berries was lower than recommended. Younger women consumed more white bread and less rye bread than older women. The consumption of candies and soft drinks has increased especially among young women.

It would have been too complicated and inaccurate to apply recommendations for energy intake or expenditure in the counselling as the counselling was implemented by public health nurses (not e.g. by nutritionists) and the time allocated for the counselling was quite short. It would also have been difficult for the postpartum women to calculate the energy content of their daily diet or daily energy expenditure. Therefore, the counselling focused on healthy dietary and physical activity habits. This has been acknowledged at page 16, lines 14-17.

3) This issue is addressed in the Results at page 12, lines 10-14:
“Among those women who did not return to their pre-pregnancy weight, the unadjusted average weight retention at 10 months postpartum was 5.2 kg in the intervention group (n=23) and 3.2 kg in the control group (n=26). However, of these women, the intervention group had higher weight retention than the control group (6.7 vs. 5.7 kg) already at 2 months postpartum when the intervention began.”

and in the Discussion at page 13, lines 19-25:
“We observed that a higher proportion of the women in the intervention group than in the control group returned to their pre-pregnancy weight by 10 months postpartum, when adjusted for confounders. However, among those women who did not return to their pre-pregnancy weight, the intervention group retained more weight than the control group on average. Therefore, the average weight retention was not lower in the intervention group than in the control group.”

It is difficult to give a more detailed explanation based on our data.
4) Initially, we adjusted for pre-pregnancy smoking status since most of the smokers stopped smoking during pregnancy, which is usually associated with a higher risk for high postpartum weight retention (Gunderson & Abrams 2000, Siega-Riz et al. 2004). We agree with the referee that postpartum smoking may also have effect on weight retention. These variables are actually quite comparable as 75% of women who smoked before pregnancy smoked also after delivery. However, we tried adjusting for postpartum smoking status (at 4-10 months postpartum), as the referee suggested. These results were fairly similar (adjusted OR 4.04, 95% CI 1.22-13.14, p=0.022).

In our data, it seems that both pre-pregnancy and postpartum smoking status have effect on the amount of weight retention. Therefore, both of them were taken into account in the analyses. We used the smoking status at 4-10 months postpartum, since only 6 women reported to have been smokers at 2 months postpartum. The smoking variables were categorised as follows and included as a dummy-variable in to the logistic regression model and ANCOVA.

1= a non-smoker before and after pregnancy
2= a smoker before pregnancy and a non-smoker after pregnancy
3= a smoker before and after pregnancy

Using this smoking variable, the results were essentially the same (adjusted OR 3.89, 95% CI 1.16-13.04, p=0.028). The manuscript is revised accordingly in the abstract, results (page 12, lines 5-7) and in the Tables 1 and 2. The following sentences are removed from the Results: “Fewer women in the intervention group (n=15, 31%) than in the control group (n=16, 41%) were smokers before pregnancy. Six women in the both groups continued smoking during pregnancy and 9 women in the intervention group and 14 women in the control group were smokers at 10 months postpartum.”

We also adjusted for this new smoking variable (instead of pre-pregnancy smoking status) in the analyses of dietary outcomes and revised the manuscript accordingly (abstract, results page 12, line 23-25 and page 13, lines 1-2, and Table 3).

5) To correct the limitations of this pilot study, any future study should be a cluster-randomized controlled trial with a larger number of clusters and participants. This is added on page 15, lines 12-14. The intervention could begin in early pregnancy in order to prevent excessive gestational weight gain (the primary risk factor for high postpartum weight retention) and continue during the postpartum period. This suggestion is added on page 16, lines 24-25 and page 17, lines 1-2. In addition, validated questionnaires for diet and physical activity should be used, if available.

6) None of the differences in the baseline characteristics was statistically significant (p<0.05) between the intervention and the control group (t-test was used for continuous variables and χ²-test for categorized variables). We have added the p-values to Table 1. In our opinion, all between-group differences in baseline characteristics may be sources of confounding regardless of the statistical significance of the differences. Statistical significance depends besides on magnitude of the baseline difference, also on sample sizes of the study groups and therefore it is possible that a variable could be an important confounder although the between-group difference would not be statistically significant. That’s why we have taken all relevant confounders into consideration in our analyses.

The presented mean values were unadjusted and the mean between-group differences were adjusted (ANCOVA). This has now been clarified in Table 2.
8) The infants were present at the counselling sessions and no babysitting was provided. Therefore, it is possible that the presence of the infants interfered with the counselling, at least part of the sessions. We have acknowledged this at page 16, lines 21.

9) The average participation rate in the group exercise sessions was 50.7% (sd 28.5) of the sessions available for each woman. This sentence has been added to page 11, lines 16-17.

10) The manuscript has been revised by a language consultant, who is a native speaker of English.

Response to Mireille van Poppel

Abstract
The text is revised according to the comments.

Background
The text is revised according to the comment.

Methods
The text is revised as follows (page 4, lines 22-23): “These visits coincided with the child’s age of 2, 3, 5, 6 and 10 months.”

The title is now “Counselling practices before the study”, which describes the content of the paragraph better. We first describe the usual counselling practices and then explain that the controls continued their usual counselling practices during this study. We would prefer to use the term “control” instead of “usual care” since the term “control” is used in all other publications and manuscripts of this study.

The cut-off of moderate-intensity physical activity varies in different publications. In the combined CDC and ACSM recommendation (Pate et al. 1995) 3-4 METs is categorized as moderate-intensity PA. According to more recent publications the MET score for moderate-intensity physical activity can be also higher. For example, Howley (2001) presents that the MET value of moderate-intensity physical activity in healthy adults can vary from 2.6 to 7.5 depending on their VO2max. According to our observations, 4 or 5 METs are most often used in publications concerning healthy general population. Regarding pregnant women, Roberts et al. (2002) have also shown that the MET scores of the Physical Activity Compendium (Ainsworth et al. 2000) may not always apply to the activities most typically performed by pregnant women. For example, in moderate-intensity walking the MET value was 14 % higher among pregnant women than in the compendium. Therefore, the MET value of 5 was used in this study. The reference to Howley (2001) is added to page 7, line 11.

We have clarified the sentence concerning the light intensity LTPA as follows (page 7, lines 14-16): “As opposed to physical activity recommendations, light-intensity LTPA (MET value 3) could also be included in the plan to improve compliance with the plan.”
The model of Laitakari and Asikainen is based on two behavioural models, PRECEDE-PROCEED (Green et al. 1980) and Stages of Change (Prochaska & Velicer 1997). This information is added to page 6, lines 22-24.

The first paragraph of the Statistical methods is revised as follows (page 10, lines 6-14):
“To test the baseline differences in background characteristics (Table 1), t-test was used for continuous variables and χ²-test for categorised variables. Differences in the duration of exclusive and partial breastfeeding were tested using non-parametric Mann-Whitney U test, since these variables were not normally distributed. As there were missing values in the duration of breastfeeding for 11 women, an indicator variable (0= non-missing, 1= missing) together with the continuous breastfeeding variables was used in analyses to prevent the loss of data. These background variables were used, when necessary, as covariates in the multivariable analyses regardless the statistical significance of the baseline differences.”

The mean body weight changes from the beginning of pregnancy to 10 months postpartum are now presented only in Figure 2 and the description of repeated measures analysis is omitted.

All analyses using ANCOVA are now described in one sentence (page 10, lines 18-23). However, we used ANCOVA of repeated measures for the physical activity outcomes, and therefore these analyses are described separately.

The analyses are now adjusted both for smoking before pregnancy and smoking at 4-10 months postpartum. Please see the response 5) to Rena R Wing. Smoking during pregnancy was not taken into account in this categorised variable since all who smoked during pregnancy (n=12) continued smoking also after pregnancy. None of the women who were non-smokers before pregnancy initiated smoking after delivery.

Results

The description of the baseline differences in shortened as follows (page 11, lines 18-22):
“The differences in the background characteristics were not statistically significant between the groups (Table 1). There were also no statistically significant differences in the duration of exclusive (medians 5.0 vs. 5.0 months, p=0.57) or partial breastfeeding (medians 10.0 vs. 8.5 months, p=0.07) between the intervention and the control groups. “

To be able to include the women with missing value for the duration of breastfeeding in the weight analyses, we made an indicator variable (0= non-missing, 1= missing) and used it together with the continuous breastfeeding variable in the analyses. The results were the practically same either we used the duration of exclusive breastfeeding or partial breastfeeding. The duration of exclusive breastfeeding is included as a covariate in the final analyses. As breastfeeding is now as a covariate in the analyses, it is not necessary to include the following text in the Discussion and it is omitted:
“Breastfeeding appears to have a small enhancing effect on postpartum weight loss, but the results of the studies are contradictory. In our study, there were no differences in the length of exclusive or partial breastfeeding between the groups. Adjustment for these variables in the logistic regression analyses did not change the results.”
The analyses on retaining maximum 2 or 5 kg are now mentioned in the Statistical methods as follows (page 10, lines 16-18):

"The confounder-adjusted analysis of the proportions of women returning to pre-pregnancy weight, and retaining a maximum of 2 or 5 kg were done by using a logistic regression model.”

The reviewer is correct in saying that the baseline for physical activity should have been at 2 months postpartum. Unfortunately, we did not collect data on that. In our study, the pre-pregnancy physical activity level was regarded as a baseline instead of 2 months postpartum, because in the physical activity counselling the participants were encouraged to return to their pre-pregnancy physical activity habits (or at least to aim to the level of 800 METmin/week) gradually after delivery.

Discussion

The text on page 16, lines 3-7 is modified as follows:

“As overweight women usually underreport their body weight more often than thinner women (Rowland 1990) and there were more overweight women in the intervention group than in the control group before pregnancy, it is possible that the intervention group could have had lower average weight retention than was reported. Removing the overweight women from the analyses did not change the results essentially, however.”

Table 1

The p-values are added to Table 1.

Table 2

In Table 2, the adjusted OR for retaining ≤0 kg and the adjusted between-group differences in the average weight and waist circumference at 10 months postpartum are now presented in a separate column. The unadjusted OR is not presented anymore. The weight (and waist circumference) at 2 month postpartum could not be shown in a column, because the baseline for weight retention is pre-pregnancy weight, not weight at 2 months postpartum. We hope that the Table 2 is now more readable.

Yours sincerely,

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References used in this response, but not in the manuscript:
