Reviewer's report

Title: Prevalence of anxiety and depressive symptoms among obese pregnant and postpartum women: a case-control intervention study

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Reviewer: Bright Nwaru

Reviewer's report:

This study assessed the impact of a weight restriction-based behavioural intervention in reducing the prevalence of symptoms of anxiety and depression among obese pregnant women attending antenatal care in a Swedish setting. The authors compared the prevalence of anxiety and depression between the intervention and control groups during pregnancy and the postpartum, and overall reported no difference between the two groups. This is a timely and important topic, and a well-design study, however, some shortcomings in the study need to be considered.

MINOR ESSENTIAL REVISIONS
Generally, I think the authors would need to do an English language check on this paper as there are several grammatical errors to correct. Also, it would be helpful if the authors can get assistance from a statistician.

A figure could be used to describe the selection/recruitment process of the study subjects.

MAJOR COMPULSORY REVISIONS

Title:
The authors used “…a case-control intervention study” in the title of the paper. There seems nothing in this study that makes it case-control in nature. Both the intervention and control groups were homogeneous at baseline. That portion of the title would appropriately be left as “… an intervention study”. I am not aware of the designation “case-control intervention study.”

Abstract:
In the Background of the study in the Abstract, what the authors presented is rather the Aim of the study and not the Background. It is therefore suggested that they change that as the Aim of the study, and if needed they could also present the Background of the study before the Aim.

In the Methods of the Abstract, BAI and EPDS should first be defined in parenthesis after Beck Anxiety Inventory and Edinburgh Postnatal Depression Scale, respectively, before the subsequent use of those abbreviations.

Materials and Methods:
Subjects:
Is the period “November 2003 and December 2005” the time when the study was carried out or when the participants were recruited? If not the time when the intervention was carried, the authors should provide that information.

Before the description of the subjects, there could be 1 or 2 sentences to briefly highlight the purpose of the study. This could aid the understanding of the reader in what the women were recruited into.

The third paragraph of the section describing subject recruitment starting with “There were no differences …” should be moved to the Results section of the paper as the information provided in that section are results.

Measures:

The last sentence in the paragraph describing the Beck Anxiety Inventory (BAI) would be clearer if stated thus: “In this study, a cut-off level of #10 was used to define anxiety on the BAI scale.” Is there a valid rationale for using this cut-off, because according to the BAI scale, this would include those with mild anxiety symptoms? The validity and limitations of using that cut-off point should be discussed in the paper. These points also apply to the description of the EPDS scale.

Statistics:

All the analyses presented in the paper, at least those reported in the tables, involved only categorical variables and were all analyzed using the X2 test. The authors stated that the Student’s t-test was used to analyzed continuous normally distributed variables. But it is not clear from the results presented which variables were analyzed using the t-test. The authors should indicate which variables were analyzed with each specific statistical method. If the t-test was not used in the analysis, then that information should be deleted from the statistical section of the paper.

It is not also clear how the logistic regression analysis was performed. The authors stated that logistic regression was used to perform a more comprehensive assessment of the between and within differences between the intervention and control groups. Usually, logistic regression may not be appropriate to test such differences; rather it is used to estimate the risk of an event, by giving the odds ratio. However, as this was not a randomized study, logistic regression should be rightly used (and should be the main statistical tool in this study) to analyze the association between the grouping variable and the outcomes by adjusting for potential confounders. As such, the authors should clearly specify what outcomes they are modeling and explicitly list what their confounding variables are and how they have been measured. Although they stated that the dependent variables were the three BAI and EPDS measurement, it is not clear what the events here are.

The information on the ethical approval should be moved to the section before the Intervention section.

Results:
The first sentence of the result section should be moved to the Statistical analysis section.

It would be useful and informative if the authors could present first a description (in a table) of the background characteristics of this study population before other results.

The description of how the multivariate analysis presented in the Results section was carried out should be well described in the Statistical analysis section. Again, a list of the various socioeconomic factors adjusted in the study should be given in the Statistical section or in the suggested first table to describe the background characteristics of the study population.

Results not presented in any of the tables should be indicated thus, that such data are not shown.

I think the results presented in the last sentence of the first paragraph of Depressive Symptoms seem to be reported from logistic regression analysis. If so, the results are not accurately reported. As stated earlier, logistic regression estimates the risk of an event for one group(s) in comparison to another group which is usually the reference group. The authors should indicate that information, and the estimates of the odds ratios and their confidence intervals should be provided. In my view, logistic regression analysis was the main analytical method in this study, so I suggest that the results from it should be presented in a table.

Discussion:

The authors stated in the title of their paper that the study is a case-control intervention study (which I have suggested to be corrected), then they described it as a prospective cohort study in the discussion. This should be clarified.

I suggest that the sentence in the first paragraph of the Discussion starting with “About 4-5% of all women …” should be placed after the second sentence of that paragraph (i.e. after the sentence “No differences were found between the groups”).

In the 4th sentence of the second paragraph of the discussion, the authors stated that socioeconomic factors such as unemployment and low level of education could have explained some of their results, and that these factors were not investigated in their study. However, the authors in the Results section described their results in relation to the education level and occupation of the mothers. This should be clarified.

In the 5th sentence of the second paragraph of the discussion: Agreed that anxiety and depression may be more common among women with low level of education, but the explanation proffered by the authors that these women may be less able to handle the expectations and demands of maternal role may likely not be a valid speculation. Please clarify this point.

In the last paragraph of the Discussion section the authors presented a number of limitations to their study, but fail to elaborate how such limitations might have affected their results.
The completion rates of the program should be quantified. It is not enough to say that that rate did not differ between the two groups. In addition, the number of answered questionnaires at the three assessments should be quantified.

Conclusion:
The second sentence of the Conclusion should be stated in the reverse. The intervention was expected to decrease/reduce the symptoms of depression and anxiety.

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

**Quality of written English:** Needs some language corrections before being published

**Statistical review:** Yes, and I have assessed the statistics in my report.

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