Author's response to reviews

Title: Physical activity, depressed mood and pregnancy worries in European obese pregnant women: results from the DALI study

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Author's response to reviews: see over
Reply to reviewers comments

Physical activity, depressed mood and pregnancy worries in European pregnant women who are obese: results from the DALI study

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Reviewer Diane Ehlers

We would like to thank the reviewer for her extensive review of the manuscript and her critical comments and helpful suggestions. This has helped us much in improving the manuscript, and is also useful for future manuscripts based on the DALI study.

Major Compulsory Revisions

• The introduction is improved from the first draft. However, the contribution of the study is still somewhat unclear. Please expand on how this study furthers the literature above and beyond the contributions of references 16 and 27. Where do these studies fall short? Or are these two of the only studies to examine mental health as a predictor of physical activity in obese pregnant women? Only a small amount of expansion on the study’s significance in this section is needed.

We have tried to make it more clear in the Introduction what this study adds to what is already known and how previous studies fell short.

• Please make sure the connection between emotional well-being and depression is clear. The mention of emotional well-being in line 170 was surprising as the manuscript up to this point referred to the primary independent variables as depressed mood and pregnancy-related worries.

We have added the link between emotional well-being and depression in the introduction section (line 91).

• The methods, data analyses, and results sections are much clearer after the authors’ revisions.

Thank you, your comments for revising the first version were very helpful in improving the manuscript.

• In the conclusion paragraph starting on Line 373, should this section mention pregnant women who are obese? In line 374, should this be the “combined risk of poor mental health and obesity”? It seems the take away of the study is that focused/tailored efforts may be needed when promoting physical activity among obese women reporting at-risk levels of depressive symptoms. This isn’t entirely apparent at the end of the manuscript.

We have added ‘obesity’ in the sentence of the combined risk, but actually wanted to indicated that inactive women with poor mental health have a combined risk. However, of course also obesity increases the risk of pregnancy complications.
We have tried to make the take away message more clear at the end of the manuscript, as suggested by the reviewer.

Minor Essential Revisions
- The statistic presented in lines 74-76 is related to American women; however, none of the women enrolled in this study were from the US. Please provide a statistic more relevant to the study sample. We have added references from European populations, more relevant to our population.

- Please provide references in Line 88. Placement of references 17-18 in subsequent sentences is sufficient; however, more references are needed as depression as a predictor of low physical activity has been “well studied”.
  We have added the references where suggested, and in addition, added reference to a Cochrane review here.

- Change the word “is” to “may be” (Line 60).
- Change the word “less” to “fewer” (Line 68).
- Change “improving” to “improve” (Line 83).
- Change “is” to “are” (Line 121).
- Include “and” after “hospitals” (Line 127).
  These textual suggestions have been implemented in the revised manuscript.

- Please provide 2+ references in Line 93.
  References have been added.

- Lines 142-144. These sentences are a little unclear as written. Consider rewording to indicate that previous validation studies have found activity estimates to be comparable across the three monitors. Additionally, the GT3X is a triaxial accelerometer, but data can be analyzed from the vertical plane only to standardize activity estimates across the three accelerometers. All three are made by ActiGraph.
  We have reworded the sentences as suggested.

- What sampling rate was used for this study (Line 145)?
  We have added that 1 min epochs were used in this study.

- Please provide the Evenson & Terry (2009) citation to justify the use of 480 minutes as minimum daily wear time and address why a minimum 480 minutes and 3 days are sufficient to estimate usual physical activity levels (Lines 150, 156). Please note that this study was in postpartum, not pregnant women.
  We have added the reference to the paper of Evenson & Terry.
• Please provide a reference in Line 161 citing other studies that have utilized this method. This reviewer is not positive, but some of Greg Welk’s work may provide this justification. 
We have added reference to a paper of Esliger et al., based on which we defined our analysis approach with regards to swimming. For this population we felt it is relevant to specifically include swimming, while it is one of the most common activities in (late) pregnancy.

• Was the CWS back-translated to validate the translation (Line 189)?
We have added that no back-translation was performed.

• The term “different mental health categories” (Line 214) – to what does this refer? The WHO-5 split at 50 and the tertiles of the CWS? This was not clear.
We have clarified the meaning of the different categories.

• Delete “SD” in Line 251 for consistency.
We have changed SD for ± everywhere in the manuscript, as suggested.

• Please reword the sentence in lines 286-287, as this manuscript does not present information on the “frequency, intensity, and duration of different physical activity.” Summary information about intensity and average daily duration is presented, but no information about the frequency of activity, duration of bouts, or different types of physical activity is presented.
We have deleted the word ‘frequency’ from the sentence.

• Please provide a citation for the EPDS (Lines 306-307).
Reference has been added.

Discretionary Revisions
• Include a statement on how the data were analyzed in the abstract (Line 49).
A sentence has been added.

• The change to “pregnant women who are obese” reduces the readability of the sentences including this identification. Depending upon the editors’ preference, the authors might consider changing this language back to “obese pregnant women.”
We agree with the reviewer that readability is better with ‘obese pregnant women’ instead of ‘pregnant women who are obese’, and therefore changed it back in this version of the manuscript. However, if the editor feels that it should be ‘pregnant women who are obese’ we are happy to do so.
• Consider using ± to express standard deviations. For example, women had a mean age of 31.6 ± 5.8 years – it may read a little better than including the units after the SD parenthetical.

We have done as suggested throughout the manuscript, including the tables.

• The abstract reads quite well. Very clear exactly what was done in this study.

Thank you!

• Consider changing “a lot of” to “many” (Line 57).

• Change “depressed mood or…” to “depressed mood and…” (Line 57).

Both textual suggestions have been implemented.

• Please provide the justification for 29 kg/m^2 as the minimum BMI to qualify for this study in the Methods section (Line 132).

We have added a sentence why this BMI cut point was chosen.

• Delete the phrase “although not validated in pregnancy” in line 159. Citation of Freedson cutpoints in other studies of pregnant women is sufficient. Inclusion of this phrase highlights a limitation of the study that does not need to be highlighted, as the authors have provided adequate justification for using these cutpoints.

We have deleted the phrase.

• The authors may consider rewording the content of Lines 236-239. The part in Line 238 suggests a mediation analysis. To eliminate this confusion, address these variables as confounders or moderators (if significant interactions between HAPA factors and mental health were observed).

We have rephrased the sentence and indicated that we assessed confounding by HAPA factors.