Reviewer’s report

Title: A secondary analysis examining the concordance of self-perception of weight and actual measurement of body fat percentage: The CRONICAS Cohort Study

Version: 0 Date: 17 Aug 2018

Reviewer: Reviewer 2

Reviewer's report:

PEER REVIEWER COMMENTS: To view the full report from the academic peer reviewer, please see the attached file.

REVIEWER COMMENTS FROM REPORT: The study uses a large sample size that is generally representative of Peruvian adults - an understudied population, and objective measures of weight status were included. Additionally, the study is longitudinal; however, it is unclear how much the longitudinal data adds to the present study in the current format of analysis. There are issues with the written quality of the manuscript - many areas need rewording or need more depth and detail, and some sections are difficult to follow. Overall, a stronger rationale is needed for exactly how these data will be able to be used by clinicians and public health leaders.

REQUESTED REVISIONS:

Background:
Line 59-60: explain what a BMI above 25 means - the first sentence suggests you are talking about obesity, but these are overweight statistics. Also, given that overweight levels were fairly similar between males and females in 1980, but females were much more likely to be overweight in 2013, why did you not choose to examine gender in these data?
Line 61-62: provide detail on the consequences of the obesity epidemic on cardiovascular health.
Line 63: please reword.
Line 62-64: what is it about self-perception of weight status that is associated with these negative effects? Incorrectly perceiving your weight status? Everyone has a perception of their weight status, so please explain how it is linked.
Line 65-67: please provide references.
Line 69-70: please provide detail on how this knowledge can aid clinicians and public health leaders to design interventions. What will they do with this information, exactly?
Line 73-75: please reword and provide references.
Line 77-81: need more detail on the value of the longitudinal data and the extra depth and value of knowledge this will provide.
Methods:
Is reference 16 a reference for a protocol or baseline study using these data? If so, please make this clearer in how it is presented.
Line 101: provide more of a definition of free fat mass.
Line 110-111: provide more of an explanation as to how height and weight were measured, e.g., what equipment was used, how was BMI calculated from these data.
Line 113-114: the end of this sentence is unclear, please reword. Also, it is best to outline the four descriptions when first mentioned rather than in a separate sentence below.
Line 116: edit 'their measure BIA weights'. Reword 'they were asked for SPW first'.
Line 118-125: I am not sure why the section on benefits of the study is included in the methods - this would be better placed in the discussion. This section is confusing. It would be much better to just state the facts of what measures were completed and what instructions were given to participants.
Line 128: this sentence is not clear. Did you predict sex, age and ethnicity or measure them? Please reword for clarity.
Line 130-139: it seems odd to go into so much detail on how BIA was categorised and no detail on how BMI was categorised. I suggest either providing detail on both, or given that you have provided references, go into limited detail on both.
Line 145-146: remove the sentence 'Those who overestimated were not…..'
Line 148-150: edit the wording here - combine the sentences.
Line 178: When referring to age, what does centered at 35 years mean?
Nowhere in the methods does it describe the demographic variables measured, e.g., sex, ethnicity. Should Equation 2 be described in the text before it is presented in the manuscript?
Line 189-190: explain how underestimation of weight status is most critical for individuals who are overweight or obese and provide a reference.
Explain the amount of missing data - is 3181 the total sample? How many of these provided complete data?

Results:
Ensure the results are written in the same tense throughout.
Line 199-201: How does this compare with the highest region?
The characteristics section varies between comparing a particular characteristic to overweight and obesity prevalence and just obesity prevalence, which is quite confusing and makes it hard to draw comparisons. I suggest keeping it consistent.
Line 210-211: Provide the detail of which setting is related to which kappa score.
The results are quite confusing and difficult to follow in places and, at times, vague about direction of the effects in the text. It seems to be a bit hit and miss as to what is reported in the text and what isn't - needs more structure and consistency.
Line 224-225: edit wording.

Discussion:
Line 253-267: this paragraph is quite long winded and could be trimmed down.
Line 270-271: explain how altitude may have played a role or remove reference to this.
Line 273-279: I'm not convinced by this section - participants who correctly perceived their weight were included in these analyses, and so, they will have brought the mean closer for those who underestimated their weight category. Percent body fat and BIA-assessed weight status use the same data, so it would be inaccurate to say one is poor and is closely associated, when it is simply how it is analysed that has generated these two conclusions.
Line 282-286: Edit 'a positively associated relationship'.
Line 296: earlier you stated that participants gained 0.05 body fat percentage points each year and now it is 0.03?
Line 294-297: I am not clear what the longitudinal data add to this study in the way it has been analysed, so how can it be expressed as a strength of the study?
Line 308-309: suggest rewording.
Line 314-316: Does research back this up? Please provide a reference.
Line 320-321: This sentence does not make sense to me - how would a clinician tailor an intervention according to underestimation? Do they typically have access to BIA in their practices?
Line 348: Surely tailoring interventions by weight self-perceptions would be a bad idea, as most people underestimate their weight? Please clarify what is meant here.

Are the methods appropriate and well described?
If not, please specify what is required in your comments to the authors.

No

Does the work include the necessary controls?
If not, please specify which controls are required in your comments to the authors.

No

Are the conclusions drawn adequately supported by the data shown?
If not, please explain in your comments to the authors.

No

Are you able to assess any statistics in the manuscript or would you recommend an additional statistical review?
If an additional statistical review is recommended, please specify what aspects require further assessment in your comments to the editors.

Not relevant to this manuscript

Quality of written English
Please indicate the quality of language in the manuscript:

Needs some language corrections before being published

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