Author's response to reviews

Title: Impact of metabolic comorbidity on the association between body mass index and health-related quality of life: a Scotland-wide cross-sectional study of 5,608 participants

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Author's response to reviews: see over
Dear Editor

BMC Public Health

Re: 1543081922635531

“Impact of metabolic comorbidity on the association between body mass index and health-related quality of life: a Scotland-wide cross-sectional study of 5,608 participants”

Thank you for your email regarding the above mentioned manuscript. We are thankful to reviewer’s supportive comments and suggestions. We have considered carefully the reviewer’s comments and these have improved the manuscript. We have made the changes as per their suggestions and we are pleased to enclose a revised version of our manuscript. Below are our point by point responses to their comments.

Reviewer #1.

1. Need to make the objective stronger and state what you compare against. Furthermore the results section should be much more focussed on the objective and if you hypothesis get rejected or not.

Response#1:
Point taken and following sentences are added to the manuscript:

Background page 5
‘Previous research suggests that deterioration in health-related quality of life in overweight and obese individuals may be due to the presence of comorbidity’

Background page 6
‘In this study, we used data from a Scotland-wide survey to address this question by comparing the health-related quality of life across the BMI category of people in the presence and absence of metabolic comorbidity’

Result page 11
Health-related quality of life was significantly reduced among obese individuals regardless of the presence or absence of metabolic comorbidity.

2. Your background should also be more focussed so you start with what is prevalence in the world and in Scotland, what is obesity and how does affect people but physical but also in relation to HRqol. From there discuss the phenomenon ‘healthy obese’ and make our objective from that.

Response#2:
Point taken and following sentences are added to background Page 5:
‘According to the World Health Organisation (WHO), more than one in ten of the world’s adult population are obese. Other sentences are already added, mentioned in response to question 1.

3. General: You write about quality of life all the time, it should be health-related quality of life as that is what SF-12 measures.

Response#3
Changes made accordingly.

4. Abstract: line 2: increased morbidity and .......

Response#4
Changes made accordingly.

5. Background: line 6: delete other

Response#5
Changes made accordingly.

6. Methods: data source: Who collect the data and is weight and height self-reported?

Response#6
Point taken and below sentences were added/amended on page 7.
‘The trained staff collected data via face to face interview (including age, sex, postcode of residence, lifestyle risk factors, medication, past medical history and current health) and measured weight, height and blood pressure and obtained blood samples for assays (including total cholesterol concentrations) (http://www.esds.ac.uk/government/shes/)

7. Results: How is the HRQol/utility for the whole group. If it is 0.8 it is very low for the general population.

Response#7
The mean score in our study is 0.80, S.D 0.138 (n=6,559). Similar, score has been reported in other study conducted on general population at Australia by Kortt and Clarke (reference below), which is 0.803, SD=0.137 (n=12,661).
Reference:
8. Discussion line 9: define adverse events

Response#8
Changes made accordingly page 12 as
“Historically, normal weight was associated with the lowest risk of cardiovascular
diseases, type II diabetes and highest health-related quality of life”

9. Discretionary. It could be interesting to look at the group BMI>35 – 40 as well to see if
it makes a different also compared to BMI>30.

Response#9:
We appreciate this suggestion and will be included in future work.

10. Discretionary. To make it a stronger article it could be interesting to look at the
healthy obese and which domains of SF-12 that drives the decline in hrqol compared to
lean people.

Response#10
We appreciate this suggestion and will be included in future work.
Reviewer #2.

1. The paper is concise and well-written and draws a clear conclusion that is well-supported by the analysis. I have only very minor comments.

2. Title page: the footnotes indicating position, institution are all numbered 1.

Response#2
All authors belong to same institute.

3. Typo at the end of abstract: please move hyphens to precede full stop.

Response#3
Changes made accordingly.

4. Table 2: Add r to “never smoke”. Please also use a different symbol for footnote with “sensible drinker”. And correct that definition or move it to “Excessive drinker”: the current version defines it as drinking more that 21 (14) units for men (women).

Response#4
Changes made accordingly in table 2 and also in definition at methodology.

5. For clarity, please indicate with Figure 1 that these results were not adjusted for covariates.

Response#5
Changes made accordingly.