Author’s response to reviews

Title: Impact of Weight Maintenance and Loss on Diabetes Risk and Burden: A Population based Study in 33,184 Participants

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The Editors
BMC Public Health

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Dear Editors,

We are delighted to resubmit our manuscript titled “Impact of Weight Change on Diabetes Incidence: A Population-based Cohort Study in 33,184 Swedish Adults” to BMC Public Health following revision based on reviewers’ comments.

Please see attached the revised manuscript in two versions, one with the changes highlighted and one clean, as well as a response to the comments below.
We look forward to your response.

Yours sincerely,

Adina L. Feldman

Response to BMC Public Health reviewers

Impact of Weight Change on Diabetes Incidence:
A Population-based Cohort Study in 33,184 Swedish Adults
By Adina L. Feldman, et al.

N.B. Manuscript page numbers refer to the version with tracked changes. We have made some additional minor wording changes and deleted one sentence from the discussion that was a repetition from the introduction, all can detailed in the highlighted version of the manuscript.

Editor

Please include a Conclusions section heading for your concluding paragraph

Response: We have included a Conclusions heading for the last paragraph as advised.

Please provide a full and properly formatted 'Declarations' section as detailed here: http://bmcpublichealth.biomedcentral.com/submission-guidelines/preparing-your-manuscript/research-article.

Response: We have revised the Declaration section as advised.
Reviewer 1

The paper deals with a very interesting subject. Explore Impact of weight maintenance and loss on diabetes risk and burden. The study was conducted 33184 participants aged 30-60 years with 10 yeas follow-up in Sweden. The main finding was the weight maintenance in adulthood is strongly associated with reduced incident diabetes risk. These results may have public health interest for diabetes promotion and prevention in whole population. It is a valuable study and the results obtained are a real contribution to the knowledge in the area. The paper is clearly written in each one of the different sections and references are mostly appropriate.

Response: We thank Reviewer 1 for the comment.

Reviewer 2

The purpose of this study was to investigate the public health potential for diabetes prevention of weight maintenance or moderate weight loss on a population level in an observational cohort with repeated measurements of weight and diabetes status.

Introduction

"As BMI is also approximately normally distributed in the population, it is a suitable candidate target for a population shift strategy, as proposed by Rose [8]"

The BMI variable in the sample does not have a normal distribution (55.2% of the data are normal, 35.9% overweight, 7.4% obesity I and 1.5% obesity II). Data are skewed right. The author mentions the population shift strategy proposed by Rose, however, this one refers to "normal" behaviour not to statistical distribution.

Response: We have revised this statement in the introduction on page 4 as advised and no longer refer to the distribution of BMI in the population.
Methods

Assessment of other variables

A number of prospective studies have investigated the effect of both PA and overweight (obesity) on incident diabetes. Why the authors did not assess the physical activity (PA)? This variable was self-reported in the baseline VIP questionnaire (commuting activity, physical activity at work, leisure activities and physical exercise).

The paper of Cloostermans [1] could help to support the PA assessment.


Response: We agree that there is considerable evidence linking physical activity as well as many other modifiable lifestyle behaviours with overweight/obesity and diabetes risk, and it is true that physical activity is routinely assessed in VIP. However, we believe that the research question concerning the interaction between physical activity and body weight in the development of diabetes is different from that addressed in the current study. Furthermore, body weight is likely a mediator on the causal pathway between lifestyle behaviour such as physical activity and diabetes. Thus, we agree that it is an interesting epidemiological research question, but it was beyond the scope of the present study to include physical activity in the analysis for this paper.

Results

"The mean BMI in the study population was 25.0 (standard deviation (SD) 3.6) kg/m2 at baseline and 26.3 (SD 4.1) kg/m2 at 10 year follow-up"

The mean has one main disadvantage: it is particularly susceptible to the influence of outliers. We usually prefer the median over the mean when our data is skewed. As the BMI is not normally distributed, could be better to report the median (IQR).

Response: We now report median and IQR BMI as well as mean and SD summary statistics in the results on page 9.