Author's response to reviews


Authors:

    Sigrid Bjornelv (sigrid.bjornelv@ntnu.no)
    Stian Lydersen (stian.lydersen@ntnu.no)
    Arnstein Mykletun (arnstein.mykletun@psyhp.uib.no)
    Turid L Holmen (turid.lingaas.holmen@ntnu.no)

Version: 15  Date: 23 May 2007

Author's response to reviews: see over

Dear Editor.

We hereby submit a revision of the manuscript “Changes in BMI-distribution from 1966-69 to 1995-97 in adolescents. The Young-HUNT Study, Norway.” for publication in BMC Public Health.

This manuscript was originally submitted to BMC Public Health in December 2006. We have carefully read the referees’ comments, and, in our opinion, are able to fully address all of the concerns. This paper is revised according to the reviewers’ comments.

Yours sincerely

Sigrid Bjørnelv

Answers to the reviewer’s comments are attached.
Reviewer Abdulbari Beners report:

Summary:
“If the authors tempt to conduct another survey for the period 1997-2006, they would find the same pattern of increase in height, weight and BMI.”

Answer:
As mention in the discussion, we conducted a follow-up in 2000-2001 with age groups 17 and 18. Here we found no significant increase in height and weight form the Young- HUNT study 1995/97. Actually we are now conducting a new Young- HUNT study (2006-08), this time with all age groups. We will follow the development during this ten-year period and report the findings. Changes in anthropometric measures occur worldwide independent of ethnicity. It is important to follow these changes in order to understand the aetiology and for evaluation of prevention strategies.

Major Compulsory Revisions:
“Authors response to reviewer is not provided point by point.
The authors should stat the limitations of the study in a brief point by point.”

Answer:
The limitations of the study are discussed as potential biases under the heading “Strengths and limitations” in the Discussion-chapter (page 9). The potential biases are the main limitations of the study.

Reviewer Arja Rimpelas report:

Major Compulsory Revisions:
Abstract methods: “The number of the first study is missing.”
Answer:
This is correct, and is corrected in the revised manuscript (page 3).

Abstract results:” A significant decrease does concern all age and sex groups, only 14 year old girls and 18 year old boys (and 16 year old boys in the lowest percentile).”
Answer:
In the abstract we only claim that there is a trend toward significance in the lower percentiles, so this comment has already been taken care of.

Significance is also commented on in the result chapter (page 8) by the following:

“If there was no expected decrease in the lower percentiles, the probability of observing a decrease for all 10 age-sex groups would be \((\frac{1}{2})^{10} = 0.001\). Hence, the observed reduction in the lower percentiles of BMI as a whole is highly significant.”

**The conclusion: (both abstract and text):** “The minimal decrease in the lowest percentiles DOES NOT implicate that underweight can be a problem among adolescents. There are of course a few adolescents for whom it is a problem and it is well known (anorexia nervosa). But what the authors seem to mean here is that it is an increasing problem. But they do not present any absolute figures showing that some adolescents has so low BMI that it is a risk for health. The decrease in the BMI of the 2,5 percentile in the population does not yet have any implications for health. A decrease in other percentiles (5%, 10%) should not be any problem on the population level. Maybe it is just a change to a healthier direction, less problematic?”

**Answer:**

We only stated that this “may indicate that underweight can be a problem” and did not claim that underweight is a problem. However, we have modified the phrase in the abstract (page 3) to: “may call for attention”.

It is true that anorexia nervosa is a problem for few adolescents, but the prevalence of eating problems including dieting is relatively high in the adolescent population in the western world. So even though this study can not say anything about implications for health, we still believe that the decrease in the lower percentiles may also call for attention.

**Results concerning the lower BMI-percentiles:** “They need to look at the absolute figures in the result section in order to show what does this decrease really mean.”

**Answer:**

We have changed table 2 to show the absolute values of the BMI-percentiles in Young- HUNT 1995/97 in addition to the differences between the two studies.

**Method:** “NHS study has not been adequately described. Who were the drop-outs, who were the participants? Foreigners cannot know that this NHS is Norway means.”

**Answer:**
We have added a description in the method section, and also added a reference.

**Method, age:** “If the truncated age was used in the data or if this was the only available, there could be marked differences in the ages in the two studies if the measurements during the calendar year were distributed unevenly in the studies or if the measurements were taken at different time of the year. From an uneven distribution it follows that the mean age of the children in the two studies is not the same. A few months difference in the mean age may cause the observed decrease in the lower percentiles. This must be described in the method section.”

**Answer:**

Following this comment, we have taken a close look at the age distribution in each sex and age group. It turned out that the ages in the NHS group were rounded off down to the nearest 0.1 years. That is, on the average rounded down 0.05 years. This was not the case in the Young-HUNT study population. Hence the mean age in both studies ranged from 0.47 to 0.52 years higher than the truncated age. (Not 0.42 to 0.52 as stated in the previous version of our manuscript, page 4.) We have calculated the resulting bias for each age and sex group using linear interpolation, described this under methods, and given the main results under Table II. The resulting bias is practically negligible. The average age truncation in the two study populations are 0.48 (NHS) and 0.49 (Young-HUNT). The resulting biases in the differences in Table 2 are between -0.01 and 0.01, except for 14 year old boys, where 0.03 should be subtracted from these differences, as we now have added under Table 2.

**Discussion:** “It is hard to understand why there were no secular changes during each survey-period. This is what the authors say in the discussion, but no figures on this have been presented. What is the relevance of this to be presented in the discussion, but not in the result or methods? Concerning the comparison of the study, the above mentioned possible problems in the comparability should be discussed and if adequate information is not available, to be honest and say this.”

**Answer:**

We have no data to support or deny secular changes during each study period, but assume the changes were small, due to the short time of the study periods (two and three years respectively). We have changed this in the discussion (page 9).

**Conclusion:** “Concerning the literature, the authors have tried to find studies that show no increase in the BMI without assessing the credibility and scientific value of those studies at all. In addition they ignore the time frame, e.g. studies from the 50s and 70 with studies from the 2000s are presented...”
as if they were parallel. The only adequate comparison with they own result is the same time frame. Obesity increase hardly started before 1979s, and the starting point can vary by country. Concerning other studies showing decrease in lower percentiles, they refer e.g. to a Finnish study. In this study there was seen just one very small decrease in one age-sex group which might be chance variation. I had no time to check the others, but a more precise description is needed.

**Answer:**

It is not true that we have tried to find studies showing no increase in BMI, we have searched the literature for changes in BMI and changes in the BMI-distribution. In the discussion part (page 10) we do comment on the problems in comparing studies, not only concerning time frames, but methodology in general including procedures for sampling and measurements. We have added some comments on these problems to the text.

**The literature:** Have the authors checked the latest literature at all?

**Answer:**

Yes, as stated in the Introduction we had searched the literature 1996-2006. for changes in BMI and the BMI-distribution among adolescents. Now we have done the same search until April 2007.