Author's response to reviews

Title: Validity of self-reported height and weight among adolescents: The importance of reporting capability

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Author's response to reviews:

Dear reviewers,

We hereby send a revised version of our manuscript ‘Validity of self-reported height and weight among adolescents: The importance of reporting capability’ (manus id: 5712745357483249).

The results presented in the manuscript are based on the Aarhus School survey. In this study both self-reports and direct measures of weight and height (collected by school health nurses) were collected. However, the direct measures were delayed in the cleaning process and we initially therefore decided to publish the results stepwise. Originally, we aimed at publishing a paper solely describing response capability by socio-demographic factors (equally to the first manuscript submitted to BMC Medical Research Methodology) followed by a paper involving associations with the accuracy of reporting weight and height (by comparing self-reported and direct measures). However, based on the comments we received from reviewer Professor Manfred Stommel we now realize and agree that comparisons of self-reported and direct measures of weight and height should be included in this first paper on response capability.

Our decision to follow the advice given by Professor Stommel has resulted in a significant revision of the manuscript – both involving new analyses and substantial revision of the text.

The aim of the study has been re-formulated into:

The objectives were 1) to estimate the prevalence of students with high and low response capability for weight and height in a school-based self-administrated questionnaire survey among a population of 11 to 15 year old Danish adolescents, 2) to estimate the proportion of missing values on self-reported height and weight in relation to capability for reporting height and weight, 3) to investigate the extent to which adolescents' response capability is of importance for the accuracy in self-reported height and weight. Fourth and finally, the study
aims to investigate the impact of students’ response capability for estimating prevalence rates of overweight.

Due to this significant revision, several of the comments previously received are no longer relevant. Below, please find our response to the comments still relevant for the revised manuscript.

Reviewer: Anna Brettschneider

Fifth paragraph: You have measured the occupational status but in the manuscript you describe it as ‘socio-economic status’, ‘socio-economic position’, ‘social class’ etc. The socio-economic status is more than the occupational status. If you merely collect information on the occupational status, you should also call this ‘occupational status’.

THANK YOU FOR RAISING THIS ISSUE. WE AGREE, AND THE TEXT AND TABLES HAVE BEEN REVISED ACCORDINGLY.

2. Table 2+3: There are no R-squared values for the multivariate models reported. Please add them.

ALTHOUGH THE ANALYSES AND TABLES HAVE CHANGED THIS COMMENT IS STILL RELEVANT. WE HAVE HOWEVER CHOSEN NOT TO REPORT THE R-SQUARED VALUES. THE REASON IS THAT THE AIM OF THIS STUDY IS NOT TO EXPLAIN AS MUCH AS POSSIBLE OF THE VARIANCE IN THE UNDER/OVERESTIMATION OF WEIGHT AND HEIGHT. THE AIM OF THE STUDY IS SPECIFICALLY TO STUDY THE ASSOCIATION OF ADOLESCENTS’ RESPONSE CAPABILITY. WE THEREFORE THINK THAT REPORTING AND INTERPRETING R-SQUARED VALUES IS RELATED TO A DIFFERENT RESEARCH QUESTION THAN THE ONES POSED IN THE PRESENT MANUSCRIPT.

Minor Essential Revisions

Table 2+3: In the text you write ‘reconstructed family’, whereas in the tables you call it ‘composed’. Please use the same term in both contexts.

THANK YOU FOR POINTING THIS OUT. THE TEXT IS NOW REVISED ACCORDINGLY.

The chi-squared tests are not calculated under consideration of the cluster sampling. To clarify that, please add a footnote to Table 1.

THIS INFORMATION IS NOW ADDED TO THE TABLE.

Background

First paragraph: normal weight instead of normal-weight
THANK YOU FOR POINTING THIS OUT. THE TEXT IS NOW REVISED ACCORDINGLY.

Measurements

1. First and second paragraph: For a better readability I would put the response categories with inverted commas when describing the way how the variables were dichotomised. E.g. …were dichotomised into being measured ‘within the past half year’ versus ‘more than half a year ago’ + ‘don’t remember’.

THANK YOU FOR THIS SUGGESTION. WE AGREE AND THE TEXT IS NOW REVISED ACCORDINGLY.

3. 6th paragraph: Again for a better readability I would put the categories like ‘traditional family’ with inverted commas.

THANK YOU FOR THIS SUGGESTION. WE AGREE AND THE TEXT IS NOW REVISED ACCORDINGLY.

1. Third paragraph: ‘overestimated’ instead of ‘over-estimated’.

THE TEXT IS NOW REVISED ACCORDINGLY.

2. Third paragraph: Please decide: ‘single parent’ or ‘single-parent’ and correct it in the whole manuscript.

THANK YOU FOR POINTING THIS OUT. THE TEXT IS NOW REVISED ACCORDINGLY.

Reviewer: Manfred Stommel

Major Compulsory Revisions:

This study is both promising and somewhat disappointing. The authors claim at the end (p.13) that “This study illustrates a way by which the validity of self-reported data on weight and height can be improved” and “By integrating items on response capability in survey instruments, participant with low capabilities can be identified and characterized whereby analyses and conclusions can be adjusted and evaluated accordingly.” Since the authors lack data on measured weight and height, it seems premature to talk about improving “validity” of self-report measures, because they have not demonstrated what effect “low response capability” has on measurement error. For instance, does it just increase variance, i.e. random error in self-reported weight and height measures, or does it lead to systematic bias, i.e., systematic over- or underestimates of weight and height? Still, the authors could, and should, do more to explore the effects of “low response capability.”

AS MENTIONED ABOVE WE HAVE FOLLOWED THE ADVICE OF
PROFESSOR STOMMEL TO INCLUDE ANALYSES OF ASSOCIATIONS WITH THE ACCURACY OF REPORTING WEIGHT AND HEIGHT (BY COMPARING SELF-REPORTED AND DIRECT MEASURES). THE MANUSCRIPT NOW INCLUDES ANALYSES OF WHETHER ADOLESCENT RESPONSE CAPABILITY FOR WEIGHT AND HEIGHT LEADS TO A SYSTEMATIC BIAS IN OVER-/UNDERESTIMATION IN WEIGHT AND HEIGHT WHEN RESPONDING IN A QUESTIONNAIRE SURVEY. ALSO THE IMPACT ON MEAN BMI Z-SCORES AND PREVALENCE IN OVERWEIGHT ARE ANALYZED.

(2) To strengthen their case that response capability affects reported weight and height, the authors may consider going beyond simple dichotomies. For instance, the discussion on p. 6 defines “high response capability” in weight reporting as a student who weighed him-/herself within the last month and claimed his/her recall was exact or approximate; everyone else was classified as having “low response capability.” Yet a simple trichotomy (“high” capability as defined, “medium” capability as either weighing within the last month or having exact or approximate recall, “low” capability as neither weighing within the last month nor having exact or approximate recall) would yield a gradation in capabilities, which could be used in the suggested tests under (1) to see, if they produce a ‘dose-response’ pattern that is consistent. For example, one would expect the largest weight score variances among individuals who neither claim good recall nor weighed themselves within a month prior to the interview.

WE HAVE FOLLOWED THE ADVICE TO KEEP MORE INFORMATION BY NOT DICHOTOMIZING THE VARIABLES ON RESPONSE CAPABILITY FOR WEIGHT AND HEIGHT, RESPECTIVELY. HOWEVER, BASED ON CONCEPTUAL CONSIDERATIONS WE HAVE CHOSEN TO KEEP ALL FOUR CATEGORIES EMERGING WHEN COMBINING THE VARIABLES OF WEIGHING/HEIGHT MEASURING HISTORY AND RECALL ABILITY FOR WEIGHT/HEIGHT.

(3) In short, the emphasis in this paper is almost exclusively on predictors of “low response capability,” but little is written about the effects of “low response capability,” certainly not enough to warrant the statement that participants with low response capability may “be excluded from analyses” (p. 12). However, there is some discussion of the effect on missing responses to the height and weight questions on p. 9: This could be expanded and shown in table format.

THE RESULTS ON DISTRIBUTION OF MISSING VALUES BY RESPONSE CAPABILITY ARE KEPT IN THE REVISED MANUSCRIPT. HOWEVER, DUE TO THE NEED FOR PRESENTING MANY NEW RESULTS FROM ANALYSES COMPARING SELF-REPORTED AND DIRECT MEASURES OF WEIGHT AND HEIGHT WE HAVE DECIDED TO KEEP THE RESULTS ON MISSING VALUES IN THE TEXT AND NOT IN A TABLE.

THE LAPSES IN THE ENGLISH LANGUAGE MENTIONED BY PROFESSOR STOMMEL STILL RELEVANT IN THE REVISED MANUSCRIPT HAVE BEEN REVISED ACCORDINGLY. THANK YOU FOR HIGHLIGHTING THESE TO US.