**Reviewer's report**

**Title:** The association of education with body mass index and waist circumference in the EPIC-PANACEA study

**Version:** 1  **Date:** 4 January 2011

**Reviewer:** Marjaana Lahti-Koski

**Reviewer's report:**

Major compulsory revisions

The associations of BMI and waist circumference with education were examined for the total EPIC cohort and by country. Given that both education level (as shown in Table 1) and the levels of obesity/abdominal obesity (my personal assumption) vary across the countries, analyses concerning the total cohort need to be adjusted for country (results presented in tables 3-4). As far as I understand it correctly, this geographical variation was taken into account in analyses using multilevel mixed linear models as stated in statistical methods. I think, however, that this information needs to be given in tables 3-4, too. My further comments on statistical analyses include concerns on adjusted models used. As both education and obesity are strongly age-dependent, it would be important to investigate the associations using age and country adjusted models. I think the main results to be based on these analyses. After that the effects on energy intake, physical activity and other life style factors might be investigated using full models to see if the associations between SES and obesity are explained by differences in these factors. In sum, I suggest three models to be used and results to be presented in tables 3-4: crude, age-adjusted, age+lifestyle adjusted (incl. adjustment for region).

In tables 3-4 also results on secondary analyses were presented. It remains unclear, however, for which variables these analyses were adjusted.

In the abstract, it was stated that in all three higher education categories BMI and WC were lower than in the lowest educational group, consistently across all countries. The presented results support this statement for the total cohort but not for all countries since data by country (supplementary figures 1-4) were presented only by comparing the lowest education level with the highest, not with intermediate levels.

Minor revisions

In the abstract, there is no need to present results with two decimals (e.g. 2.12) but one decimal will do.

In tables 3-4, instead of abbreviation “smk” I would prefer smoking.

In the figures, an explanation for dotted vertical lines should be given. Results by
country are mean differences with confidence intervals, I assume.

Discretionary revisions

In the methods it was said that total energy intake was computed from the dietary assessment instruments. More information on dietary assessment methods should be given (base on FFQ, 24h RC or what).

Referring to table 2 it was said that subjects with a low educational level were shortest. This information, however, was not given in the table.

I understand that data for this study were comprised from an ongoing prospective cohort study, and in EPIC reports it is important to state at which stage the information was collected. As a whole, however, the data used in this particular study were collected at baseline, and thus the design here is cross-sectional. Therefore, I find it a bit confusing to talk about baseline data randomly in different places. For example, referring to table 2 in the results it was said that women had the lowest alcohol consumption at baseline whereas the baseline data were not referred to regarding physical activity. Similarly, in the title for table 2, it might be no need to talk about baseline characteristics but only about characteristics.

BMI information was available for all subjects whereas only 73 % of the subjects had information on waist circumference. I wonder whether these missing values (27%) were equally distributed across the subsamples, and if this had any effect on results. I suggest this issue to be considered to be included in discussion.

Level of interest: An article of importance in its field

Quality of written English: Acceptable

Statistical review: Yes, but I do not feel adequately qualified to assess the statistics.

Declaration of competing interests:

I declare that I have no competing interests.