Reviewer's report

Title: Smoking differences between employees in faculties of the University of Tartu, Estonia, and changes during the country's transition

Version: 2  Date: 29 November 2010

Reviewer: Frida Eek

Reviewer's report:

Major compulsory review

Regarding my request for results to be presented and discussed in relation to their significance (or non-significance): I must say I'm a little bit puzzled by your response. I did not require p-values; if you prefer to use p-values or CI's is up to you (actually, I also think that CI's are preferable, since they provide more information than a single p-value). However, no matter whether you use CI or p-value: the aim is to judge whether your results are "significant" or not, i.e., how likely is it that the difference you observe (your point estimate) reflects a "true" difference, or could be a difference that happened just by chance. Since you haven't included the total target population, and hence would be interested in making statistical inference to the population (in this case the university) this is a highly relevant question. Also, you set up hypotheses and, despite 'the growing criticism against testing' you do perform analytical tests, and you do present CI's. So then, why are you "reluctant to use significance testing"!? Quote: We were not looking for "significances". We were looking for difference estimates accurate enough to differ from the baseline with a reasonable certainty."

Isn't that exactly what significance testing is about!? Again, whether you use p-values or CI doesn't matter, what you do evaluate is if you can, or can not, say that there is a difference with a "reasonable certainty"; namely 95% certainty, which is the generally accepted limit for "reasonable certainty", and which you also appear to accept by presenting 95% CI's.

I suggest that, if you are reluctant to significance testing and not at all looking for statistically significant results or to make statistical inference, you may consider presenting the results as a descriptive report rather than as a research article, and then NOT present CI's, or perform the analytical tests. If you do want to test hypotheses and perform analytical tests, you should use the information given and presented, and discuss the result by including the issue of statistical significance. Now, it is a mixture where you present CI's but totally ignore the interpretation of them, or using vague expressions as "imprecise" or "tended to". Also, expressions like 'Women's smoking declined in only four faculties "with any certainty"' sound a little odd. Why not explicitly use the conventional probability levels?

You may well discuss the lack of significant changes or differences in relation to lack of power/small sample sizes, but you still need to be clear about the difference between significant and non-significant results (although I am well
aware that the 5% limit is not equal to the difference between true or false). Again, I am NOT asking for p-values, you may well use the presented CI's!

Do I understand the tables right, that some of the point estimates consist of one single smoker in the group? E.g. Exercise and sport science 2003, 4% among 25 persons? Or women, 3% among 29? Or 4% among 28? (survey II)? And then you put these percentage point estimates into a regression model, where you find a significant association? I think that the major uncertainty in the point estimates that is put in the regression model at least needs to be discussed! Or have I misunderstood the method?

Additional comments:

I don’t think that your second hypothesis is possible to confirm or reject in an objective way, by the current methods. What does “similar enough to justify a conclusion that…” actually mean?

Minor essential revisions
Survey: First you write that questionnaires were identical, then you state that education was asked for only in the first survey?

Results: response rates etc belongs, in my opinion, to methods/description of participants/study sample.

P 8, smoking difference between work places
“the adjusted figures for daily smoking in the faculties…” Isn’t it rather “adjusted figures for difference in daily smoking between medical faculty and other faculties…”?

Discretionary revisions
Data analysis: Why was age introduced as 3rd degree polynominal?

Level of interest: An article of importance in its field

Quality of written English: Needs some language corrections before being published

Statistical review: Yes, and I have assessed the statistics in my report.

Declaration of competing interests:

I declare that I have no competing interests