Reviewer's report

Title: Education-based health inequalities in 18,000 Norwegian couples: The Nord-Trondelag Health Study

Version: 8 Date: 6 November 2012

Reviewer: Anton Carl Jonas Lager

Reviewer's report:

Dear editor and authors,

Thanks for the revised version.

-I will not suggest any further revisions.

However, I still think (and sorry for being a nuisance) that it is important to remember that a "one-year increase in education relative to that of one’s partner" means, say for a policy maker, educating one person for one year. A "one-year increase in a couple's average education" means educating one person for TWO years, or TWO persons for one year. That you get "more health" out of the latter will, I fear, not be that surprising for the same policy maker.

I also think you should be aware that by including the difference between own education and the couple’s average in Model 3 (and the abstract) you might be doing something similar to what has been done in previous studies of birth-weight and later growth. Those who have included both birth-weight and later weight in their models conclude, roughly, that only later weight is important, whereas those who include birth weight and the change (later weight minus birth weight) conclude that both are important. The reason for this is mathematical, where the expression E(Y) = #0+#1(X1)+#2(X2) can be re-written as E(Y) = #0+(#1+#2)(X1)+#2(X2-X1). Thus, what happens when you include a "change" (X2-X1, or in your case own minus couple's average education) instead of the actual values of the first and the second variables, is that you "blow up" the importance of the first. That may of course be defended from case to case.

Best regards,
Anton Lager

Level of interest: An article of importance in its field

Quality of written English: Acceptable

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