Reviewer’s report

Title: Response rates and selection problems, with emphasis on mental health variables and DNA-sampling, in large population based cross-sectional and longitudinal studies of adolescents in Norway

Version: 1 Date: 17 March 2010

Reviewer: Anne Kjersti Daltveit

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General comments

This study aims to evaluate response rates, selection and selection bias in association measures in follow up studies of adolescents with mental health, general health, physical activity, and smoking as main health related outcomes, and ethnic background, parental education and parental income as main socio demographic characteristics. A specific aim was to evaluate predictors of failure to provide DNA samples.

The paper is well written, and the statistical and epidemiological methods seem to be appropriate. The study is based on both urban and rural samples. This is a strength, and the fact that the results were similar across the various samples indicates that the results may be generalized.

Major comments

The tables and the flow chart are clear, although the flow chart is some complicated to interpret with respect to some individuals that seem to be included in two samples (box with 2269 responded).

Regarding follow up, the procedure of mailing, invitation to schools etc. is described. It is unclear to me how participants in the initial studies were traced with respect to moving, emigration, or death. Was there some sort of linkage to population registries to trace this, does the Poission regression account for this, and could such reasons of loss to follow up possibly explain the results vs. non-western adolescents?

A specific aim was to identify predictors of failure to provide DNA. Regarding this it should be notified that the baseline represents a sample with individuals willing to participate in the initial cross sectional study and hence cannot necessarily be generalised to the population baseline. The authors conclude that "it is unlikely that the invitation to provide DNA has influenced the response rates of 18/19 years old". This conclusion is probably based on the fact that the willingness to provide DNA was close to 100 % among participants who accepted linkage of data. Since all invited received the same invitation which included a question to provide DNA, we cannot rule out the possibility that this question has influenced participation in general, or the willingness to accept linkage. The authors discuss
a "mix" of reasons for so many adolescents refused the linkage (page 19). The same argument could possibly be used at pages 23/24 when discussing the willingness to provide DNA, i.e. that the question of DNA might have influenced how the respondents relate to participation in general, or linkage of data.

Minor comments
The abstract reports that 42 % were lost in follow-up. I was not able to find the numbers this percentage is based upon.