Author’s response to reviews

Title: Health and educational aspirations in adolescence: A longitudinal study in Finland

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Response to reviewer comments BMC Public Health (Manuscript ID: PUBH-D-19-00302) “Health and educational aspirations in adolescence: A longitudinal study in Finland”

Dear Prof. Dr. Marie-Victoire Cosson,

Thank you for this positive news. Please find below how we have addressed the reviewer comments.

Dorothea Kesztyüs (Reviewer 1): Reviewers report,

In this manuscript the authors report a survey of adolescents between their 7th and 9th grade on self-reported health factors in correlation with the students choice to be made between academic and vocational tracks.

Comments and recommendations on the content of the manuscript.

Overall: This is a comprehensive and well-written manuscript on an interesting topic. It adds new information to what is already known about health and education, especially in a very sensitive phase, the adolescence. The statistical methods used, and in particular the rather scarcely to be found attrition analyses, are very appropriate. However, there are a few aspects or questions that I would like to address.

RESPONSE 1: Thank you for taking the time to review our work. We appreciate your insightful comments and helpful suggestions.
Abstract Methods, line 24: Please resolve the acronym SDQ to improve comprehensibility.
RESPONSE 2: Thank you. We have corrected it. In the respective line it reads now “Health factors (Strengths and Difficulties Questionnaire (SDQ), self-rated health, daily health complaints, and long-term illness and medicine prescribed) and sociodemographic background were self-reported by the students.”

Methods 2.5. Analytical strategy & all respective tables: please add any information about the model fit e.g. pseudo r2 or -2LL for the different regression models. You can follow the example of Dey & Raheem if you wish (1).
RESPONSE 3: Thank you for raising this point. In Stata there are two types of model fit measures available for gsem https://www.stata.com/manuals13/semintro7.pdf. These are Akaike and Bayesian information criteria and likelihood-ratio tests to compare constraint and unconstraint models. We decided that in our setting it is better to use the estat ic command to calculate AIC / BIC information criteria for comparing the fit of the reported models. In line with our hypotheses, AIC and BIC both suggest that the models that include demographic control variables and students’ school performance fit the data better than models that include only health factors. On page 12, first paragraph, it reads now "Akaike (AIC) and Bayesian (BIC) information criteria were reported for comparing the fit of the models to the data”. Please find them in last rows of Tables 2-4.

Results 3.1 Health in the 7th grade, line 19-23: The CI includes 1.00, possibly due to rounding errors? At least significance is marginal.
RESPONSE 4: We apologize for this confusion. We have replaced 1.00 with >1.00 at the two occasions in Table 2 on page 19. This change consequently did not affect the interpretation of our results and was indeed due to a rounding error.

Results 3.1 Health in the 9th grade, line 55-59: "was associated with being less undecided" would be clearer. I don’t really see a conflict here, I would consider it as a natural development process in decision making.
RESPONSE 5: We agree. On the end of page 13 / beginning of page 14, it states now “Having a long-term illness with and without medicine prescribed was associated with being less undecided. The association for the use of medicine persisted over and above sociodemographic control variables.”

Discussion page 2, line 16-29: Only "medicine prescribed" was related to lower (not higher) aspirations when assessed in the 7th grade. While in the 9th grade a rather balanced ratio between lower and higher educational aspirations becomes clear. There are lower odds for both tracks in grade 9 but almost equal odds for vocational and academic tracks. I recommend revising this section and possibly to adapt the abstract in this sense.
RESPONSE 6: Indeed, we unfortunately had mixed the direction of association even though the main message remains, namely, that the associations between educational aspirations and long-term illness are mixed: The respective sentences read now: “Inconsistent results were observed for long-term illness, which related to lower educational aspirations when being assessed in the 7th grade but instead to higher educational aspirations when being assessed in the 9th grade. Adolescents that reported worsening of health between the measurement points in regards to
long-term illness also applied proportionally less often for both educational tracks instead of the academic track only.”

Table 2, full model, vocational track, SDQ slightly raised: this CI also contains zero, so strictly speaking it is not significant.
RESPONSE 7: Again, thank you for your careful reading. As described above, we have corrected this by replacing 1.00 with \textgreater1.00.
We hope that the revised version of our paper is ready for publication in BMC Public Health.