Reviewer's report

Title: Anthropometric measurements in childhood and prediction of cardiovascular risk factors in adulthood: Kaunas Cardiovascular Risk Cohort Study

Version: 1

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Reviewer: Akhgar Ghassabian

Reviewer's report:

This is a longitudinal study examining the relation of childhood BMI (~12 years of age) and change in BMI from school-age to adulthood with cardio-metabolic profiles in adulthood, in a sample of ~500 school age children in Lithuania. The study has interesting findings, confirming previous reports from large scale longitudinal studies showing the importance of BMI change from childhood to adulthood in cardio-metabolic health.

My major concern is the age of children at the first assessment of BMI. There is evidence that an important predictor of adulthood adiposity is the age that BMI rebound happens, rather than a child’s BMI at BMI rebound. Therefore, tracking of BMI in the early age (from infancy to preschool age, when the BMI rebound happens) has of great importance in the prediction of adulthood obesity or cardio-metabolic profiles. In the present study, the first assessment of anthropometric measurement happened at school age (~12 years), and therefore, the study is simply unable to capture a BMI change in the most critical period of growth. Therefore, an important question regarding the tracking of BMI from childhood to adulthood and its role in the development of cardio-metabolic outcomes cannot be answered.

Minor points:

1. The section of the sample is not clearly discussed in the study. Was the sample of 1082 all children born in the area in a specific time? And if it is a random selection, how was the number of 1082 was selected?

2. The section on the measurements (Methods) should be divided into sub-sections on childhood measurement and adulthood measurement. In the current form, the measurements at the start of the study are mixed with the follow-up measurements.

3. On the relation between CRP and cardiovascular disease, the authors are suggested to review the article: Timpson et al. C-reactive protein and its role in metabolic syndrome: Mendelian Randomisation study 2005 The Lancet

Level of interest: An article of limited interest

Quality of written English: Needs some language corrections before being published
Statistical review: No, the manuscript does not need to be seen by a statistician.

Declaration of competing interests:
'I declare that I have no competing interests'