Reviewer's report

**Title:** The impact of early life factors on cognitive function in old age. The Hordaland Health Study (HUSK).

**Version:** 1  **Date:** 28 May 2013

**Reviewer:** Sargoor Veena

**Reviewer's report:**

Comments to the author

This historical cohort study investigates the prospective association between a range of early life factors and cognitive function in community residents aged 72-74 years. The author concluded that although there was no substantial evidence for the association between early life factors and late life cognition, there was some evidence for an association between prenatal SES and some cognitive domains.

The paper is generally well-written. Literature on this topic is limited and the topic of the paper is important and this data would certainly be a useful addition to the literature, and of interest to the readership of the journal. However I have some criticisms and concerns (specified below).

**Major comments**

**Abstract**

1. Study setting and/a brief description of exposure of interest is worth mentioning.

**Introduction**

2. Rationale for the study from public health perspective needs to be mentioned in the introduction

3. Mention the main objective/hypothesis more clearly with regard to the strength of the available data

**Method**

4. The paragraph describing study population is not very clear. I think a proper sequence is helpful and a flow diagram will enable the reader to understand the details.

5. Were the participants' term born/ preterm? Was gestational age available?

6. Are the cognitive tests used are validated? Give inter/intra observer variation details of the test administrators.

7. Mention the parameters of pelvic size.

8. Which maternal complications were considered?

9. Statistical analysis: It is worth mentioning if any variable was transformed. What is the purpose of standardising the cognitive test variable? Mention the
statistical method used to compare the groups. What analysis was used to investigate the association between early life factors and cognitive function? No information about looking at interactions are addressed in this section.

Results

10. In Table 1 give the unit for composite score and other cognitive test scores. Mention the method for deriving p or mean difference in the foot note. I did not see any significance difference in bold but the foot note mention significance difference in bold.

11. Table 2 mention the parameter of pelvic size, unit for mother’s age and define parity. For ponderal index what does mass indicates? give the unit for composite score and other cognitive test scores. Reformat the table.

12. Table 3 Reformat the table; mention column headings, units for cognitive test scores, define parity, what does the value indicate and how it is derived and whether crude or adjusted associations. Which parameter of pelvic size used in the analysis? Which maternal complications were considered?

13. Table 4 again reformat the table; mention column headings, units for cognitive test scores, what does the value indicate and how it is derived and whether crude or adjusted associations.

14. In the post-hoc analysis in the results section mention the effect size since the data is not shown

15. The result section needs restructuring with clear interpretation with the data presented in the table.

16. Since maternal age, parity are likely to influence birth size it is worth adjusting for these variables too.

Discussion

17. The points made in the discussion are reasonable but limited. Since they have not adjusted to some potential confounders, like gestational age, parity, maternal age which are likely to influence birthweight interpretation of their data needs to be made cautiously.

18. Some of the findings reported in results (dental condition) are not discussed.

19. The authors have not written their conclusions from their study, and implications from this study.

Minor comments

Check for English language throughout the manuscript.

Level of interest: An article of importance in its field

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:

No competing interest to declare