Reviewer's report

Title: Preterm Birth and the Risk of Multiple Sclerosis: A Population Based Study

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Reviewer: Nils-Halvdan Morken

Reviewer's report:

1. The question is clearly stated in the background section of the abstract. The authors intended to investigate whether preterm birth increased the risk of subsequently developing multiple sclerosis (MS). However, in the last paragraph of the introduction the aim does not occur to be as clearly stated as in the abstract. I believe the main aim should have been stated as clearly as in the abstract.

2. The methods section is incomplete and difficult to understand for those of limited knowledge about the CCPGSMS-project. More general description of the collection and questionnaires are essential for the understanding of the paper. Gestational age data were collected by telephone interview with the mothers of the MS index cases. This may introduce recall bias. It is stated that the validity of the information was corroborated by additional questions asked about birth weight, length of hospital stay, and the use of incubator, nothing is said about the criteria for this additional asked questions. What answers supported that the delivery was a true preterm delivery and what did not? What was done about those who did not remember? I also wonder how many were asked the gestational age questions, and how many that did not answer or were unable to answer properly.

3. The data seems to be sound, but concerns addressed above should be addressed.

4. The manuscript is presented according to the relevant standards.

5. The discussion has an ok balance, but I find it a bit awkward that the month of birth effect is presented (Table 3), when in fact it is underpowered as stated in the discussion section.

6. The possible limitations such as recall problems, the fact that gestational age info is based on interview is not discussed in this paper. A firm discussion of limitations is necessary.

7. The authors have a broad and well balanced description of why the study is performed and also refer to several other works that they have been building their hypothesis upon.

8. The title “population-based” is not well described in the manuscript; in fact it needs to be addressed more firmly. This adds to my criticism above, that the methods section is way to slim to be assessable for a reader that is unfamiliar with this specific topic. Also the methods section in the abstract needs to be sharper. How was the cases and controls defined, how was the information
9. The writing is acceptable, but the authors need to adhere to the journal style and to avoid putting tables in the main body of the text at this stage. Some other minor errors are evident and disturb the reading experience.

**Level of interest:** An article whose findings are important to those with closely related research interests

**Quality of written English:** Acceptable

**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.