Reviewer’s report

Title: The impact of maternal smoking during pregnancy on depressive and anxiety behaviours in children: The Norwegian Mother and Child Cohort Study

Version: 1
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Reviewer: Kimberly Yonkers

Reviewer’s report:

1. Question posed is an important one. The size of the cohort adds to the literature although the nature of the data (self report of smoking in pregnancy, self report of child internalizing symptoms and high attrition) are major limitations.
2. Methods are described in sufficient detail to replicate although the level of missing data makes replication complex
3. Data are sound but limited due to minimal information on internalizing and maternal symptoms and attrition
4. Manuscript does adhere to relevant standards for reporting data
5. The conclusion is not well supported by the data
6. The title and abstract convey what was found except they should include the issues with attrition
7. Writing is acceptable

Specific comments:

Background:
Overall, the background is disorganized in terms of topic and subsequent statements supporting the opening sentences. The first paragraph is more than one paragraph and ideas from the second paragraph are better suited to go with statements from the first paragraph.

Background page 4, Lines 9-10. The authors state that prospective observational studies support a causal relationship but they do not stipulate which of the two causes mentioned in the preceding sentence that is supported as potentially causal. Direct physiology or genetic and environment? It is well established that maternal smoking in pregnancy is a marker for psychiatric disorders, use of other substances, maladaptive childhood etc so what causality do they refer to?

Background: why is so much time spent discussing externalizing disorders that may be associated with maternal smoking when the paper is about internalizing disorders. The data on externalizing disorders can be briefly summarized and then confounds can be briefly discussed if it is essential.

Methods:
(minor) HSCL-5 includes anxious as well as depressive symptoms

Results:
Page 10, under descriptive statistics. Does the 9.3% of mothers smoking in early pregnancy refer to unique mothers or mothers in the 90,400 pregnancies?

Please be explicit re the reason for the attrition. Is it the children are not candidates for interview yet or is it all attrition? If this is all due to attrition, it is very high (72%).

Limitations:

Page 13, why would teachers, as informants, be relevant to maternal nicotine use. It would be relevant for child behavior but not maternal smoking.

Possible cohort effects may need to be considered. Eg. It is less acceptable to spoke now in pregnancy than 10 years ago.

Additional comments:

The attrition is a major limitation to this report and the importance of this is underplayed. The lack of significance in 18 month and 5 year findings may be due to less power in these groups, despite the substantial initial size. It is impossible to fully predict the impact of the attrition.

Despite the authors attempt to disentangle genetics/personality/health behaviors from the direct risk of maternal smoking in pregnancy, the findings are not compelling and residual confounding could account for small effects of maternal smoking on child outcomes.

The authors mention mood symptoms but anxiety is just as much of an issue with the instrument that was used in this report.

Quality of written English: Acceptable

Statistical review: No, the manuscript does not need to be seen by a statistician.

Declaration of competing interests:

No competing interests