Reviewer’s report

Title: Infections among pregnant working women: A study in the Danish National Birth Cohort

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Reviewer: Alberto Scarselli

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General comments:

This paper aims to analyze the risk of infection among occupational groups in a cohort of Danish pregnant women (the DNBC). The authors utilized the interview method to collect information and the logistic regression model for statistical analysis. Moreover, they analyze the risk of adverse pregnancy outcomes for specific occupational groups.

This is a concise manuscript that, overall, is easy to read. However, the discussion is too concise and not exhaustive, and some methodological points need to be clarified and possibly improved. The discussion should be improved in order to emphasize the purposes of the study, to compare and contrast the results with other relevant studies (more exhaustively) and to support the consistency of findings. The lack of emphasis on original aspects of this study is another issue. The authors should specify what differentiates this study (and adds) from previous similar studies.

The conclusions should explore the implications of the findings for future research (e.g., to improve exposure assessment methods, control and monitoring exposure, etc.).

Major Compulsory Revisions

Methods

1) Methods are a little unsatisfactory. The authors link the infection (or some morbidities) with adverse pregnancy outcomes through the selection of specific occupational groups, where the risk of infection is high. But in these sectors the adverse pregnancy outcomes may be due also to other types of exposure (chemical agents, etc.).

2) References n. 16 and n. 17. I think that for the detailed description of the DNBC study is better to cite the following article: “Olsen J et al. The Danish National Birth Cohort – its background, structure and aim. Scand J Public Health 2001 29:300-307”. References n. 16 and n. 17 are subsequent studies, and may be cited after (e.g., as a reference for variables related to the adverse pregnancy outcomes).

3) Reference n. 19 refers to CATS technique. In the text, the authors say that
they use CATI technology. This reference seems to be misplaced. Please, verify the correctness of the reference and clarify this point.

4) I think that statistical analysis on the risk of infection may be implemented. For example, the number of episodes (for some interview questions) can be analyzed.

5) In the statistical analysis, authors bring together in one group (group E) “all other workers” with “unemployed women”. This could imply a potential bias and a detailed comment on this argument is essential. Excluding the “unemployed women” from the analysis, the results would change? Differences between “unemployed women” and “all other workers” in the risk of infections could be analyzed? I think this may be done in a supplementary analysis.

6) The numbers on population in study are presented in a confusing way: how many women were in the study? In the text (page 7) it is said that 87,708 is “the final study population” but in table 3 it results 83,448 (64,379+8,699+9,151+932+287). The difference is births without adverse outcomes? The same for table 2, the sum is 87,633 (67,894+9,394+9,126+932+287). Moreover, it is said that 90,301 pregnancies (about 90% of total pregnancies enrolled in the study) participated in the first interview. How many of them were cancelled for no contact? It is said that the excluded pregnancies were: 2,425+93+42+24+3+1=2,588. But 90,301-2,588=87,713 which is different from 87,708! If I am correct, clarify these points.

7) The analysis on adverse pregnancy outcomes is only mentioned in the methods. It seems to be added as a supplementary analysis, secondary to the aim of the study (in contrast of what said in the Background section). I think that this analysis needs to be described in detail in the methods. Moreover, the title of the study does not properly convey what has been found and should be changed in something like: “Risk of infection and adverse outcomes among pregnant working women in selected occupational groups”.

8) The authors do not specify how the adverse pregnancy outcomes were retrieved. Please provide some details in the methods and add some references (e.g., reference n. 16). The adverse outcomes analyzed may be linked to the infections but also to other risk factors (e.g., exposure to organic solvents?). This point needs a comment in the discussion.

Results

9) The fields of table 3 should be further detailed in methods. For example: What are the “Major anomalies”? This is mentioned only in the footnote of table 3 (that they refer to the EUROCAT classification) without any further specification in the text and bibliographic references. Just as the term APGAR<7 that is assumed known without explanation in full.

Discussion and Conclusions
10) The results should be interpreted more extensively. For example the statement: “the prevalence of male infants higher among women who worked with animals” needs to be further commented and, if possible, supported by other evidence. May this finding be due to chance? Further investigations are necessary.

11) For some groups of workers (e.g., laboratory worker, hairdresser, hospital workers) the adverse pregnancy outcomes were already analyzed in other studies for the same cohort (DNBC). This should be commented and discussed.

12) The discussion merely addresses the content of paragraphs of the results section. Limits and strength points are only mentioned. I think that some implications that could derive from these limitations (or strengths) should be examined.

13) A comment on the interview-related bias and on the selection of occupational groups should be added (more extensively).

14) The comment on the self reported bias should be deepened. How can this affect the results? Same for the non-use of a JEM. A more accurate discussion and proper references are required.

15) The fact that “only about 60% of those invited chose to participate” (page 5) needs a comment (may represent a limit). See reference n. 18.

16) The mean gestational age at time of interviews (16 and 30 weeks) may influence the results? Add a comment.

17) A comment about major preventive measures currently in force on health protection of workers (especially during pregnancy) from exposure to infections in Denmark might be added.

18) The conclusions are too brief. Add some sentences on the relevance of the study.

Minor essential revisions

1) Abbreviations should be defined when first used, if not provided in the list of abbreviations (e.g., CATI, APGAR). Please, spell out these terms.

2) Add the page number in the manuscript.

Abstract

3) Page 3, 4 lines to the end: the CI needs a digit after the dot (CI:1.0-1.???)

4) The sections of the abstract are not well balanced. Shorten the section of results.

Background
5) Page 4: References 2 and 3 are inverted?

Methods

6) Page 6, line 12: Please insert interquartile range!

7) Page 6: The list of interview questions in the text is wrong: they are 8 questions and not 7 (a number is missing “if she had had cold score or genital herpes (yes/no)”

8) Page 6, line 19: “cold score”: Did you mean “cold sore”?

9) Page 8, line 6: “20.”? Please, insert a digit (“0”) or delete the dot.

Results

10) Page 9, line 3: the word “groups” is repeated.

11) Page 9, line 6: delete a dot.

12) Page 9, 2 lines to the end: CI needs a digit after the dot (CI:1.0-1.???).

13) Tables are difficult to read (numbers are sometimes divided into two lines). Format the tables to display each entry in a single row.

Discussion

14) Page 12, line 3, sentence: “We did not see these associations in this study”. What kind of associations were not observed in this study? I think that the authors have not analyzed the association between cystitis and adverse pregnancy outcomes. Clarify this assertion.

15) Page 12, line 12, sentence: “Our results suggest that …. , women in specific occupations may still at increased risk of infection during pregnancy”. I think that it must be specified that the increased risk of infections (during pregnancy) was observed between workers in specific occupational groups (highly at risk of infections) and the “other workers”.

References

16) References should be cited in the order they appear in the text and arranged in numeric order in the reference list. Instead, in the text, it is cited first the number 1, then number 4 and 12 and so on (they are not in numerical order).

17) The reference list should show only the references cited. Instead, the range of references [20-23] and [25-28] do not seem to be cited in the text.

18) If there are more than one reference to support an argument, it is advised to cite only the more recent (e.g., 34, 35; or 38, 39 and 40).

19) Check the formatting of some references (e.g., n. 7).
Discretionary revisions

1) A supplementary analysis separating “unemployed women” from “other workers” might be performed.

**Level of interest:** An article of limited interest

**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.