Peer Review Report

Review Report on Industrial air pollution leads to adverse birth outcomes: A systematized review of different exposure metrics and health effects in newborns

Review, Public Health Rev

EVALUATION

Q 1 **Please summarize the main theme of the review.**

The review is focused in to analyze the current literature about the adverse birth outcomes associated with industrial pollutants and providing an overview on the topic, highlighting the limited current literature and the risk for susceptible populations.

Q 2 **Please highlight the limitations and strengths.**

The topic is relevant in the field because most of the current literature is based on outdoor exposure, and industrial sources of air pollution represent a high risk for susceptible populations.

The main limitation is the lack of a deep discussion about the industry type and how this can affect the air pollutants in the studied area. In addition, the exposure assessment discussion results are necessary, the authors do not discuss how different the exposure or damage biomarkers can affect the observed associations. Including and suggesting an appropriate exposure assessment can add relevance to the review. A search based on PAH or benzene can reveal some articles that cannot be associated with industrial sources; mainly because the other relevant environmental source of PAHs and benzene are vehicle exhausts and not just industry sources.

Q 3 **Please provide your detailed review report to the authors, structured in major and minor comments.**

Comments

Major

Some of the selected toxicants such as PM, PAHs, BTEX, and Particulate Matter can be produced by industrial activities, however, the emission source can come from non-industrial sources such as vehicle exhaust, etc., especially in developing and high populated countries. This questions how studies performed on industrial air pollutants were selected.

Methods.

The author stated as part of the inclusion criteria "2) the mothers had been exposed to at least one industrial pollutant: PM2.5, PM10, PAH (including benzo(a)pyrene), benzene, BTEX, or heavy metals", however, industrial sources cannot be the only source of some of the mentioned pollutants. A search based on "PAH" or "benzene" can reveal some articles that cannot be associated with industrial sources, given that another relevant environmental source of PAHs and benzene are the vehicle exhausts and not just industry sources. What criteria did the authors apply to limit the search to just industry sources?

3.3.1 section. The authors analyze and report the main findings in a clear way, and state "the controversial results may be due to differences in the chemical composition of PM10 in different studies as well as the possibility that PM10 could have served as a surrogate for some unmeasured toxicant", however, the chemical characteristics of PM2.5, PM10 and nanoparticles are different, given that their sources determine the nature and toxicity of each one. It would be relevant to discuss the diversity of industries included in the analysis and their influence on the chemical composition of the particulate matter as well as a discussion about how the difference in size and composition can induce ABO and which particles will represent a higher risk for pregnant

women and fetuses. In addition, it is not clear how the studies were selected, do the authors include industrial activities as a source of particulate matter? Was the study area located in an industrial area? How was the industrial source determined in the particulate matter composition?

Minor

3.3.2 and 3.3.3 sections. A discussion about the exposure or damage biomarkers and how this can impact the observed associations is needed. A deeper analysis based on the source of the sample; if it was tissue-specific (placenta or cord blood) or a more general measurement (urine or blood) can impact the results.

3.3.4 and 3.3.5 sections. How the mixture analysis performed impact the observed risk? Based on the reviewed scientific work, may the authors suggest an appropriate approach to analyze industrial air pollutants mixtures?

Conclusions. Please, expand the discussion about the impact of exposure assessment and the type of industry and pollutants mixture on the ABO.

PLEASE COMMENT

Q 4   Does the reference list cover the relevant literature adequately and in an unbiased manner?

yes,

Q 5   Does this manuscript refer only to published data? (unpublished data is not allowed for Reviews)

Yes.

Q 6   Does the manuscript cover the issue in an objective and analytical manner

Yes.

Q 7   Was a review on the issue published in the past 12 months?

No.

Q 8   Does the review have international or global implications?

yes, studies from different countries were included in the review

Q 9   Is the title appropriate, concise, attractive?

Yes, however I suggest to avoid abbreviations in the tittle

Q 10   Are the keywords appropriate?

yes

Q 11   Is the English language of sufficient quality?

yes

Q 12	Is the quality of the figures and tables satisfactory?

Yes.

QUALITY ASSESSMENT

Q 13	Quality of generalization and summary	■■■■□
Q 14	Significance to the field	■■■■□
Q 15	Interest to a general audience	■■■□□
Q 16	Quality of the writing	■■■□□

REVISION LEVEL

Q 17	Please take a decision based on your comments:

Major revisions.