Reviewer’s report

Title: Exposure to the Chinese famine in early life and the risk of anaemia in adulthood

Version: 1 Date: 5 March 2013

Reviewer: Tessa J Roseboom

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Major compulsory revisions

Please provide more information on when and how the data were collected. It is unclear whether data were all collected in 2002 or later, and at what age of the participants?

Please provide more data on when the famine started and ended and how this was assessed.

Please provide information on how dietary intake was assessed.

Provide linear regression analyses on Hb levels as outcome rather than only on anaemia.

Provide effect size in women also (on only separate effect in men).

The number of subgroups in the analyses is too large compared to the number of subjects. Famine exposure was measure of interest, then it was subdivided into men and women, low and high ses, obese and non obese and with or without hypertension. This is simply too much to make statements about with these numbers.

The discussion needs to be worked on;

it is unclear which measurements were done and how on iron intake, also it is unclear how large the subsample was (and how this was distributed across exposure groups) and therefore the statement in the discussion that the effect on anaemia was not due to differences in intake is far too strong for the data currently provided. Please amend.

It is unclear how old people are but one would expect women >55 all to be postmenopausal - it does not fit their statement of lack of data on menstrual status in the women. Please provide more detail.

Half the population was overweight so the authors statement that anemia coexisted with obesity in half the population exposed prenatally doesn’t suggest that this has anything to do with famine exposure.

Also I would like to see more discussion on the fact that those exposed prenatally
will also have been exposed in early life since the famine lasted 3 years rather than 9 months. The effects of only exposure in pregnancy are thus difficult to assess.

The discussion about inflammation should be revised. If they want to know something about inflammation I would suggest measuring markers of inflammation rather than suggest (as the authors do) measuring ferritin and so on.

Please comment on selection bias due to selective mortality across famine exposure groups as well as selection bias due to reduced fertility - which will have been a problem in the prenatally exposed group.

Also, I would like to see more in depth discussion of the biological mechanisms in para 2 of the discussion

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

Quality of written English: Needs some language corrections before being published

Statistical review: Yes, and I have assessed the statistics in my report.