Author's response to reviews

Title: Prevalence of maternal smoking and environmental tobacco smoke exposure during pregnancy and impact on birth weight: retrospective study using Millennium Cohort

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Author's response to reviews: see over
Dear Editor,

I have responded to each of the referee’s comments below.

Comment 1: Other studies have asked about smoking by household members other than the mother and her partner. This can make a considerable difference to the amount of ETS exposure. In particular if a women without a partner actually lives in a household with other smokers then in this study the woman would be misclassified as having no ETS. If the data are available then it would be useful to see some analyses incorporating this, providing numbers allow. If not some discussion of this would be appropriate, for example on the influence of any misclassification.

Response: The Millennium cohort has details of smoking status for the mother and her partner only, and not for other members of the household. However, we would suggest that the partner’s smoking is likely to be the greatest source of ETS exposure, and in fact only 10% of households included an adult (grandparent or unrelated adult) other than the mother and partner. Nevertheless we agree that smoking by other members of the household would have led to misclassification of ETS exposure, and since this is likely to be non-differential, would have resulted in a weakening of the apparent effect of ETS exposure. We have added a comment to this affect in the discussion.

Comment 2: I’m not sure whether the use of birth weight z scores really addresses the issue of small for gestational age. Again if the sample size allows it would be interesting to see whether there is any relationship between smoking and ETS and SGA.

Response: We have perhaps used poor terminology here. We used the term ‘birthweight z scores’ when we should have called these ‘sex and gestational age specific (SGA) z scores’ and have changed this terminology accordingly. SGA z scores represent birth weight which is adjusted for gestational age at birth. Our results suggested no significant effect of ETS upon SGA z scores (a continuous measure), and since there is also no obvious cut off for small for gestational age, we have not presented the results for SGA expressed as a binary outcome.

Comment 3: Active smoking is probably the most important risk factor but does it make a difference to the risk estimates, low birth weight, and prematurity if both the mother and her partner smoke i.e. is there any contribution of the ETS?

Response: As the reviewer points out, the effect of active maternal smoking on birth weight is overwhelming when compared to that which ETS would be expected to produce. This is why we have looked at the effect of ETS exposure within those women who are not also active maternal smokers and we have seen a smaller, but consistent, effect of ETS. The main difficulty in looking at the contribution of ETS to birth weight effects in the context of active maternal smoking is that the former would be completely obscured, and very likely to be confounded by the heaviness of active smoking. For these reasons we prefer to restrict our research question to investigating the impact of ETS in the absence of active maternal smoking.

Comment 4: Studies of other exposures have been able to look at whether the timing of the exposure is important i.e. by trimester. Do the data allow
categorisation by trimester i.e. if a partner stopped smoking during the pregnancy?

The data did contain a question concerning changes in smoking by the mother and partner after the start of pregnancy. We have looked at the effect of active maternal smoking and ETS smoke exposure at different stages of pregnancy, i.e. smoking at 3 months and 6 months. In fact, reported smoking by the partner changed very little over the time course of the pregnancy. Just 4% of partners stopped smoking in the first couple of months and so the effects of ETS exposure were very similar at different stages of pregnancy.

Since determining the overall impact of any ETS exposure on birth weight was the main focus of our study, for simplicity, we have not presented results at different stages of pregnancy, but now comment on this in discussion. Smoking by the mother, as expected, changed more markedly during the pregnancy, with 27% of those smoking at the start reportedly stopping smoking in the first couple of months, but for comparability with the ETS data, we present the results for active smoking including those mothers who only smoked at the start of pregnancy.

Yours sincerely,

Tim Coleman