Reviewer's report

Title: Existing maternal obesity guidelines may increase inequalities between ethnic groups: a national epidemiological study of 502,474 births in England

Version: 1 Date: 17 September 2012

Reviewer: Jenny Cresswell

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MAJOR ESSENTIAL REVISIONS:

1. Timing of BMI measurement?
The outcome for the study, BMI, is stated to be measured in the first trimester. However, the only exclusions mentioned are the 9% of the data due to missing ethnic group data (results, 1st paragraph). Some women unfortunately always attend their booking appointment later in pregnancy than this (and mean gestational age at booking is 14 weeks in this study), so were they excluded also? Either this exclusion needs to be fully reported (along with any other missing data), or the timing of measurement of BMI needs to be clarified.

(In fact, South Asian ethnic groups are more likely to be late bookers than White, so if BMI values measured late were included in the study then this could potentially have biased the findings.)

2. “Nationally representative” claim
Throughout the study, the authors place a substantial amount of emphasis on the fact that this study is “nationally representative”. Indeed, the first line of the discussion section reads “This is the first nationally representative maternal obesity dataset to…..”

The authors claim the study to be nationally representative because the catchment populations of included maternity units did not differ in demographics from the general population of childbearing age using census data. The authors do not provide any specific details on this comparison. However, I feel this is an inappropriate use of the term “nationally representative”. A nationally representative study is defined as one in which the sample is selected with known probability of selection from a defined population; each individual has an equal probability of selection, and if this is not the case then weights are calculated. This is not the case in this study.

The authors should remove the label “nationally representative” from the paper throughout, e.g. instead referring to it as simply a “national study”. If they wish to discuss the representativeness of their data, they should also present specific details of the comparison in a table to show the specific variables compared, the value in both their study and the census and the results of any statistical test(s) used for comparison.
MINOR ESSENTIAL REVISIONS:

3. Background, 2nd paragraph, 5th & 6th line:
Authors have used the greater than (>) symbol; should be using greater or equal than (≥).

4. Methods, 1st paragraph:
Greater clarity is needed regarding where the sample came from – the text of this paragraph needs to be revised. If the survey response rate was 89% then there should be ~216 maternity units, not 135 - what happened to the others? If the point the authors are trying to make is that ~80 units are not even collecting any BMI data during antenatal care then this is surprising, and I feel this is worthy of comment in its own right.

Furthermore, there are only actually 34 units who provided any data. I feel it is quite misleading to flag 89% as the response rate, when the more useful statistic for someone trying to interpret the results of this study would be something more along the lines of “we obtained data from 14% (34/243) of the NHS maternity services”.

5. Methods, 6th paragraph:
In the first line of this paragraph the authors state that the “data did not require adjustment for age”. However, they then go on to adjust for age in the logistic regression model. Please explain this.

6. Results, 4th paragraph, 11th line
“The association between obesity and all other ethnic groups compared with White women did not reach statistical significance”. The difference and the CI and/or p-value still should be stated even if the result was not significant.

7. Discussion, 4th paragraph, 4th line:
The authors state “there is international evidence of differential obstetric risk between ethnic groups and the inter-relation between obesity and ethnic groups”. Please specifically cite some of this evidence here. Even better, it would be helpful to the reader if the authors explain briefly what the current evidence base shows.

Also, please insert a brief comment explaining why the authors don’t feel it is appropriate for such evidence to inform UK guidelines. For example, there are certainly some relevant studies on obesity and ethnic group from the USA; if the mechanism between obesity-ethnicity-risk is primarily biological then it is not automatically clear why we would expect substantial differences between such similar settings.

DISCRETIONARY REVISIONS:

8. Methods, 6th paragraph, 5th line
It would perhaps be better to state confidence intervals in full (rather than CI) the first time phrase is used.

9. Results, 1st paragraph
Mean BMI is presented. Is the data normally distributed? Settings with relatively high levels of obesity often have a skewed distribution of BMI and it would be interesting to know the median.

**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.