Reviewer's report

Title: Parental smoking and child poverty in the UK: An analysis of national survey data

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Reviewer: Rijo John

Reviewer's report:

The article titled "Parental smoking and child poverty in the UK: An analysis of national survey data" addresses an important issue in the tobacco control literature that has not been addressed in the context of U.K. though it has been well studied in the context of several other countries. The paper needs substantial revision before it may be considered for publication in BMC Public Health. In particular, I would like to highlight the below.

Major Concerns
1. The literature on tobacco expenditures exacerbating poverty has not been reviewed at all in the article. BMC public health being a journal with international readership, the survey of literature should not be restricted to U.K. alone.
2. The organization of the article needs to be substantially changed for it to become less confusing to the reader.
3. Tables in the article are not self-explanatory and adds confusion.
4. The methods used are not clearly stated. Some calculations in Appendix need more clarity and should be moved to the method section as an appendix may not be there in the published paper.

Specific Concerns
Page 3 line 2: How’s children defined in this study?
Page 3 line 23: It has been estimated elsewhere in the world in few countries. Please review the literature carefully.
Page 3 line 25: The paper is not really providing an estimate of the cost of smoking in this context as claimed here. At best it provides a certain dimension of cost of smoking.
Page 4 line 19: “modified OECD equivalence scale”—citation needed.
Page 5 line 5: be specific on which part of the appendix you are referring to. Items in Appendix are not arranged in the same order as it is referred to in the body of the paper. This is confusing.
Page 5 line 25: you say the smoking prevalence in general population was 20%. In Appendix 1A second column, however, you say the base smoking prevalence is 33%. How do you reconcile these?
Page 6 line 2: be specific on which part of the appendix you are referring to. In Appendix table 1A it is not clear how you came up with the weights in the third
column. However you did it, those weights are distorting the base smoking rate substantially to unacceptable levels which substantially alters the numbers you are finally estimating.

Page 6 line 5: It is not clear how the weights were obtained.

Page 6 line 6-9: When you apply a certain smoking rate of single parent to the total number of children in these households how do you account for the fact that these houses consist of houses with different numbers of children, some with a single child, some with two children, some with 3 or even more. This is not clear here. There are some numbers in the tables for poverty among children with different household sizes. However, it is not clearly explained how they were arrived at.

Page 6 line 12: What was the data used by Jarvis et al.? What was its sample size? Was it a representative data? Are you right in using these proportions to your data? None of this is clear in your discussion. Again you refer to an appendix in the next sentence without pointing to the exact location within the appendix.

Page 7 line 5-7: But the average prices typically paid by the poor may be even lower right? So if you apply the averages from the entire population to estimate the expenditure on cigarettes by poor you may be highly over estimating it.

Page 7 line 8-9: Are you sure that of the 73% of female and 59% males who smoke manufactured cigarettes none of them smoke HRT? Are these figures exclusive? Are there none who smoke both cigarettes and HRT?

Page 7 line 21-22: It is not clear why a 70% cut off was selected here. Why would you rather not deduct the cigarette expenditure from the entire sample above the 60% of median? It is not clear why this artificial cut off is necessary.

Page 8 line 4-6: This is problematic. The assumption here is that every two-smoker households between 60% and 70% of the median income has same expenditure on smoking. This is quite unrealistic as the smoking rates (frequency) can vary substantially among the smokers within this group. The previous studies that calculated the number of those drawn into poverty after accounting for smoking expenditures deducted the actual amount spent on cigarettes by each of the households from their present income and checked how many of those had incomes below the poverty level income after such subtraction.

Page 8 line 13: Error Reference

Appendix 3 Step 2 f: Did you mean total number of children or smoking parents?

**Level of interest:** An article of importance in its field

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

**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