Reviewer’s report

Title: An examination of exposure and avoidance behavior related to second-hand cigarette smoke among adolescent girls in Canada

Version: 2
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Reviewer: Benjamin Healey

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This is a well written paper covering an important area for tobacco control; youth exposure to second hand smoke (SHS). I have the following recommendations for the authors:

Discretionary Revisions
- The labels in table one could be expanded to clarify the subset for which percentages are being presented. For instance, the 40% figure for current smokers is presumably of those who had indicated they had ever tried smoking, but it is not immediately clear upon reading the table.
- The font size of the text on lines 242-244 appears smaller than the surrounding text, although this may simply be an artefact of the journal PDF preparation process.
- The authors make the point that some adolescents might do more to avoid SHS exposure, and that targeted communications would be effective at prompting such behaviour. This may be true, but another aspect worth emphasising is that perceived ability to avoid may be limited in many situations due to social norms. If so, communications may need to be tailored to address social pressures that undermine motivation to avoid. At the same time (and I would suggest more importantly) even greater emphasis could be placed on the last paragraph of the discussion, which rightly advocates the extension, monitoring and enforcement of existing smokefree area policies to create environments that protect young people by default rather than placing the onus on them to avoid exposure.

Minor Essential Revisions
- The justification for a focus on adolescent girls could be strengthened. Presently, the argument is that evidence for increased breast cancer risk justifies this focus and that it will be important to target communications to young women to increase the likelihood they will take efforts to avoid SHS exposure. However, little is provided to suggest that a) this group can be targeted efficiently or b) targeted communications (by gender or focus on breast cancer) would be more effective than alternatives such as gender-neutral messages relating to lung cancer or adverse social outcomes from smelling of smoke.
- It is not clear from the methods description whether the authors analysed a subset of the BASUS sample or whether BASUS was administered only to adolescent girls. It would be useful to know this and, if a subset is being
analysed, whether the full set of responses gave any indication of nonresponse bias (e.g., substantially fewer girls responding than boys).

- The brief measure based on Prochaska’s State of Change model is not described in the methods. An outline of the question(s) asked would enable readers to better understand how the ‘Maintenance’, ‘Action’ etc. responses were derived.

- Sentence one, discussion section: please indicate that the frequency/location/avoidance data is all self-reported.

Major Compulsory Revisions

- Although the authors make note of the low response to the BASUS in the limitations section, I remain unconvinced that the results are not subject to substantial nonresponse bias. For instance, the vast majority of respondents (78%) indicated they were from middle-income families. This seems high even taking the possibility of social desirability bias into account. Since SHS exposure is likely to differ substantially between SES groups, it is possible the results from this sample have limited generalizability. Are the authors able to compare the demographics of their sample to school-based population data collected for administrative purposes, to establish that the sample came from schools across the economic spectrum? If not, and in light of the ‘middle income’ response, the authors need to emphasise the potential limited generalizability of their findings.

- It is not clear why the authors elect to present their findings in Venn diagrams, nor why they chose the specific combination of variables they analysed. Like pie charts, Venn diagrams are not a good mechanism for visually presenting data because people are not well adapted to accurately perceiving areas within circle segments. More importantly, it is not evident from the diagrams that the data being presented is substantively different from what was observed in other combinations of variables. For instance, regarding Figure 2: what was the breakdown of exposure for those who had no home smoking restrictions and parents who smoked? Was it that different to those who had restrictions? Presumably the specific combination presented was exceptional in some way or was of particular interest for conceptual reasons. Whatever the case, this could be made more explicit in the methods section. Moreover, it would be ideal for the authors to present data for the full set of combinations in a table for interested readers – perhaps as a supplementary section.

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

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.