Reviewer’s report

Title: Regional variation of premature mortality in Ontario, Canada: a spatial analysis

Version: 0 Date: 09 Feb 2019

Reviewer: Haikun Wang

Reviewer’s report:

The authors performed a spatial analysis of mortality through a case study in Ontario. They revealed large geographic variation of premature deaths among regions due to some well-known risk factors, which have policy implications on improving regional public health.

I have some suggestions to improve the quality of this paper:

1. Premature death is an important indicator in this paper. The authors should explain briefly how they evaluate the premature death in the main text, but not referring to a literature.

2. Other factors such as material deprivation, current alcohol consumption, excess body weight, inadequate fruit, vegetable consumption, sedentary behavior and ever-smoked status should also be introduced in detail. For example, their definitions and unit.

3. In the hierarchical Poisson regression model implementation you described in additional file 1, the model estimates was defined as "the age-standardized mortality ratio for LHIN sub-region i". However, you "report sex-specific rate, which have not been age-standardized" (statistical Analysis, Line 2). I suggest that you add implementation or relevant references to describe the methods of age-standardization and ensure consistency of related nouns in the article.

Level of interest
Please indicate how interesting you found the manuscript:

An article of limited interest

Quality of written English
Please indicate the quality of language in the manuscript:

Acceptable

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