Reviewer's report

Title: Attributable risk from distributed lag models

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Reviewer: Changchun Xie

Reviewer's report:

This paper extended definitions of attributable risk within the framework of distributed lag non-linear models to account for the additional temporal dimension which characterizes the delayed non-linear exposure-response associations. The authors explained the model clearly. I only have a few minor comments:

1) Can this definition of attributable fraction (AF) be extended to the combined exposed and nonexposed populations to define a population attributable fraction (PAF)?

2) Page 9, “The temperature-mortality association is expressed as a cross-basis function in Eq. (3), composed of a quadratic B-spline with two equally-spaced knots as the exposure-response function f(x), and a natural cubic B-spline with three equally-spaced knots in the log-scale as the lag-response function w(l) over lags 0-25.” Why did the authors choose quadratic B-spline with two equally-spaced knots as the exposure-response function f(x), and a natural cubic B-spline with three equally-spaced knots in the log-scale as the lag-response function w(l)? How to choose the cross-basis function is the key in the DLNM modelling framework. Can the authors provide some advice?

Level of interest: An article of importance in its field

Quality of written English: Acceptable

Statistical review: Yes, and I have assessed the statistics in my report.

Declaration of competing interests:

I declare that I have no competing interests