Reviewer’s report

Title: The association of cold weather and all-cause and cause-specific mortality in the island of Ireland between 1984 and 2007: a time-stratified case-crossover study

Version: 2

Date: 11 September 2014

Reviewer: Kai Zhang

Reviewer’s report:

This paper examined the cold effects on mortality in Republic of Ireland and Northern Ireland. It addresses a very important extreme weather-related topic, which is relevant to this journal. This manuscript is recommended to be published after addressing several major issues.

Major compulsory revisions:

1. The statistical analysis need be refined to adjust time trends (not mentioned in the methods section), to explore whether cold has a linear effects, and to add separate effects of cold spells in addition to cold. For example, Anderson and Bell (2009) used a spline term to account for non-linear associations between cold and mortality.

2. The authors pointed out that lack of air pollution adjustment may not affect their results. The previous studies cited by the authors are not sufficient to support this statement because those studies have not examined PM2.5. The authors are encouraged to conduct an additional analysis to evaluate whether air pollution affect their estimates because it makes this study more convincing and comprehensive.

3. Some discussions need to be expanded, e.g., discussion on differences of estimates between Republic of Ireland and Northern Ireland. The authors need to further explore or discuss which factors may likely result in larger cold effects in Republic of Ireland compared to Northern Ireland. Also, Table 5 shows cold affected more on people above 75 years of age than those between 65 and 74 in Republic of Ireland, however, this pattern is reversed in Table 6. This should be discussed.

4. The authors stated that “The ability of the case-crossover .... may also support the greater size of our estimates than those observed in most of the previous”. This statement is suggested to be deleted. Theoretically, for analyses like this study without including personal risk factors, case-crossover design is equivalent to Poisson regression models (Lu and Zeger, 2007)

References:


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

**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