Reviewer’s report

Title: Spatial clustering of fatal, and non-fatal, suicide in New South Wales, Australia: Implications for evidence-based prevention

Version: 0 Date: 26 Jul 2017

Reviewer: Michael Leitner

Reviewer’s report:

This manuscript is well written, well structured, and its content is easy to read and to understand. It is innovative, since this research is the first ever to study the spatial distribution and clustering of both suicide mortality and morbidity. However, this manuscript is rather weak and basic in terms of its methodology and analysis. For this reason, it is suggested to expand the analysis part of this manuscript as follows: First, add 1-2 additional spatial hot spot methods to the existing hot spot analysis. Kernel density estimation and nearest-neighbor hierarchical clustering would be two excellent additional hot spot methods that could be added. Second, run a geographically weighted regression analysis (or equivalent local regression analysis) to explore the demographic, socioeconomic, etc. factors that are responsible for the creation of spatial suicide mortality and morbidity clusters. Adding both additional analyses would make this manuscript much stronger.

Additional comments:

A justification is needed why, among a large number of spatial cluster methods, SaTScan and Getis-Ord Gi* were selected for the analysis.

The interpretation of the Getis-Ord Gi* on pg. 8 is incorrect and should be corrected. A 99% confidence interval requires a z-score that is <-2.58 or >+2.58. For a 95% confidence interval the z-score is <-1.96 or >+1.96, and for a 90% confidence interval the z-score is <-1.65 or >+1.65.

The final SA2 composite score can be more elegantly derived with simple overlay operations in a GIS. Why are results from both spatial cluster methods weighted equally?

On pg. 13, the authors state that "It is possible that the significance of some suicide clusters may have changed if unit level spatial data was available to be mapped." This is part of what is known as the Modifiable Areal Unit Problem (MAUP), a standard and long known issue in Geoinformation Science. MAUP needs to be referenced here and discussed.

Authors need to discuss in Section 3.3 or 3.4 how the exclusion of 19% of SA2s may (or may not) have impacted the cluster results for suicide deaths.
Figure 1 is not a figure, but should be listed as Formula 1, Formula 2, and Formula 3. It should be noted that "Figure 1" is directly copied from the following website without citation: https://pro.arcgis.com/de/pro-app/tool-reference/spatial-statistics/h-how-hot-spot-analysis-getis-ord-gi-spatial-stati.htm

Figure 2: Do the numbers 1, 2, 3 in the legend indicate the three different confidence intervals (90%, 95%, and 99%)? This information should be added to the figure legend.

Figure 4: What classification method was employed to classify composite scores? Since different classification methods impact how results are visualized in the map, the specific classification method used here should be mentioned.

Are the methods appropriate and well described?  
If not, please specify what is required in your comments to the authors.

No

Does the work include the necessary controls?  
If not, please specify which controls are required in your comments to the authors.

Yes

Are the conclusions drawn adequately supported by the data shown?  
If not, please explain in your comments to the authors.

Yes

Are you able to assess any statistics in the manuscript or would you recommend an additional statistical review?  
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I am able to assess the statistics

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