Reviewer's report

Title: The role of multilevel factors in geographic differences in bicycle crash risk: a prospective cohort study

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Reviewer: Bas de Geus

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The role of multilevel factors in geographic differences in bicycle crash risk: a prospective cohort study

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Comments to the AUTHORS

Major Compulsory Revisions

The title of the manuscript is misleading. 1. To which extend is this an ‘prospective cohort study’? 2. The only ‘geographical’ variable I see in this manuscript is the difference between Auckland and the rest of NZ and the use of mesh blocks (although the mesh blocks only seem to be used to make a difference between Auckland and the rest of NZ).

This manuscript is a combination of 2 (or even 3) very different topic: 1. Accidents statistics; 2a. factors that would influence cycling; 2b. perception of environmental factors.

Could the authors give a rational for including both topic into one study? Part 2a and 2b will have an influence on bicycle usage, but I do not see the link with accidents. Will a ‘barrier to cycling’ e.g. too hilly (Table 4) cause an increased risk for bicycle accidents?

Study 1: bicycle accidents

- This study has a very detailed and rich database (crash data, insurance, police, …) that was already be used in other manuscripts from the same authors. The only novelty for this manuscript is the analyses between Auckland and ‘the rest of NZ’. The manuscript does not give any indication of the (geographical) differences between both that could be interesting to conduct a study on. Is Auckland a large built-up area and the rest of NZ part of the country side? Does NZ only has one large city?

- What is the incentive to look for a difference between Auckland and the rest of NZ?

- The novelty of this manuscript could have been an analyses using the mesh blocks. Unfortunately, the results section does not mention anything about the mesh blocks, except that they are use to differentiate between Auckland and the rest of NZ.
- The results section on the accidents only deal with on- en off-road. Poor for a manuscript and not original.

Study 2: there is no reference to which questionnaire were used. Where these existing questionnaires? Were these questionnaires validated? On which previous research are they based?

- The Methods section describes in great detail which were the databases (crash data, insurance,…) that were used and describes the statistical procedures. What is missing is a (detailed) description of the parameters that your used for your models.

The results section:
- Table 2 gives absolute numbers of crashes
- Table 3 the risk of on-road accidents without any ‘geographical’ characteristic
- Table 4 environmental factors perceived as important in influencing cycling for transportation

Where is de ‘link’ between bicycle accidents and the rest of the study?

Minor Essential Revisions
- Abstract, Results and further on in the manuscript: “Of the 2554 participants whose ….”. In the Methods section (page 6) the authors indicate that “a total of 1537 participants completed the questionnaire”. Page 8: “all the data were completed for 2435 participants”. And on page 9 the authors write that “… 1511 participants were used…”.

Does the study include 2554, 1537 or 1511 participants?
- What is meant with ‘baseline differences? The authors should indicate this in the Methods section.
- Conclusion of the manuscript, last sentence. Would you promote cycling in an unsafe environment like Auckland (if I know that 322 Auckland participants experienced 538 bicycle crashes, is 2 per person in 4.6 years)? Or would you rather first advocate for building a cycling friendly environment and ‘educate’ car drivers for respecting the vulnerable road users?

Discretionary Revisions
- Page 4: “…level of active travel,[16]” should be “…level of active travel [16].”
- Page 8: what is meant with: “The participants were censored on 30 June 2011 or date of death.”?

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 have no competing interest.