Author's response to reviews

Title: Cross-sectional associations between residential environmental exposures and cardiovascular diseases

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Author's response to reviews: see over
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Professor Els Clays
Associate Editor
BMC Public Health

Dear Professor Els Clays,

Thank you for your communication of October 13th 2014 indicating that we should submit a second revision of our paper, "Cross-sectional associations between residential environmental exposures and cardiovascular diseases", MS 1633238668138590.

We have carefully read and considered each of the comments from each reviewer. We have revised our manuscript in accordance with the reviewer's suggestions and feel that the manuscript is much improved. Attached is a document outlining, point by point, how we addressed each reviewer's comments.

We hope our manuscript is now suitable for publication. We look forward to hearing from you.

Best regards,

Antony Chum
Dr. Mark Rosenberg’s comments (reviewer 1)

1. I am now satisfied with the manuscript and recommend that it be published.

We thank Dr. Rosenberg for his endorsement of our paper.

Dr. Susan Elliott’s comments (reviewer 2)

1. I appreciate the opportunity to re-review this manuscript and I appreciate the inclusion of a number of updated references.

We thank Dr. Elliott for her endorsement of our paper.

2. I want to be clear to the authors: I suggested these references as examples of pieces of work with which I was familiar that had been done recently that change the landscape of our understanding of urban health. In no way do I want the authors to think I was simply trying to raise my H index or those of my students. And although these references were added in an appropriate location in the text, the spirit of my comment appears not to have been addressed; that is, the literature in this paper - overall - remains outdated. Therefore, although the authors claim to be making a strong contribution to the literature, those familiar with this literature will not see it. For example, lines 8 - 11, "no studies have investigated a broad range of urban planning related environmental factors including land use, housing and transportation - a short coming identified in Diez-Roux’s review of neighbourhood effects on cardiovascular health." First, this is not the case (see the references I originally provided which are indeed cited in the following paragraph but the links don't seem to be made here....); in addition this review is over a decade old.

We’ve re-written the section to add in a number of newer studies identified in an updated investigation of the literature, thus, acknowledging many newer studies. This section remains focused on studies with cardiovascular disease outcomes that were published since Diez-Roux’s review:

“Since the publication of Diez-Roux’s systematic review of the evidence linking neighbourhood environments and CVD outcomes [8], newer studies have gone beyond neighbourhood SES to examine neighbourhood environmental factors including the effect of neighbourhood-based social support on the risk of ischemic heart disease [9], the effect of neighbourhood violent crime on the risk of coronary heart disease [10], the effect of neighbourhood level electoral participation on the risk of coronary heart disease [11], and neighbourhood psychosocial hazards (i.e. violent crimes, abandoned buildings, and signs of incivility) and CVDs [12]. In addition to neighbourhood level psychosocial factors, a separate growing body of literature links CVD outcomes with exposure to physical environmental factors including the impact of residential exposure on traffic and its impact on coronary artery calcification [13], the effect of exposure to ambient particulate and gaseous pollutants on coronary heart disease [14], the joint association of air pollution and
noise from road traffic with cardiovascular mortality [15], and proximity to road traffic and coronary heart disease mortality [16]. While the list of social and physical environmental factors studied have grown, no studies of cardiovascular diseases (i.e. myocardial infarction, angina, coronary heart disease, stroke, and congestive heart failure) have simultaneously examined a broad set of social and physical environmental factors including characteristics of land-use, the food environment, housing, traffic, crime and noise into a single study. By studying a broad range of individual and neighbourhood-level determinants of health simultaneously, this study helps to clarify the relative importance of various environmental determinants of cardiovascular diseases [17].” P.2 (The numbered citations here correspond with references in the manuscript)

We appreciate the citations that Dr Elliot brought to our attention, and we acknowledge that there are many studies that examine the link between neighbourhood level social and physical environmental factors and CVD risk factors (described starting in paragraph 2 of the paper), such as obesity and level of physical activity, but this is not exactly the case for cardiovascular disease outcomes (i.e. myocardial infarction, angina, coronary heart disease, stroke, and congestive heart failure). While there are some studies that look at social and physical environmental exposures and cardiovascular disease outcomes, they do not do so simultaneously in a single study that examines a broad set of environmental factors including characteristics of land-use, the food environment, housing, traffic, crime and noise. To help clarify this point, our focus on CVD outcomes has been made more explicit throughout the paper by specifying the particular disease outcomes of interest for this paper (i.e. myocardial infarction, angina, coronary heart disease, stroke, and congestive heart failure).

3. The fact that over 2400 in person interviews were undertaken is nothing less than remarkable. I do however have some concerns about the measures of psychosocial stress used; I have worked in this area before, and have never seen such measures used. Perhaps they have been used in other works - the authors could cite examples.

Our paper examined violent crimes and dilapidated housing condition as two sources of neighbourhood-level psychosocial stress. Neighbourhood violent crime (normalized by the number of inhabitants in that neighbourhood) has been studied in relation to the risk of coronary heart disease [1]. Housing quality, measured by self-reported state of repair of housing, has also been examined as an environmental determinant of health as described in a systematic review of the subject [2]. The mechanisms through which signs of social disorganization (including violent crimes and dilapidated housing) can impact psychosocial stress of residents is described by Sampson [3-5]. We’ve added references to support our decisions in the methods section (see p.7)

4. I have spent less time focused on the analysis, given concerns with the framing. If the paper is accepted for publication, a map of the area would be a very nice addition for an international readership.
A map of the city of Toronto showing our sampled census tracts has been added to the manuscript – see p. 22 of the manuscript.

References


