

PEER REVIEW HISTORY

BMJ Open publishes all reviews undertaken for accepted manuscripts. Reviewers are asked to complete a checklist review form (<http://bmjopen.bmj.com/site/about/resources/checklist.pdf>) and are provided with free text boxes to elaborate on their assessment. These free text comments are reproduced below.

ARTICLE DETAILS

TITLE (PROVISIONAL)	Large-scale investment in green space as an intervention for physical activity, mental and cardiometabolic health: Study protocol for a quasi-experimental evaluation of a natural experiment
AUTHORS	Astell-Burt, Thomas; Feng, Xiaoqi; Kolt, Gregory

VERSION 1 - REVIEW

REVIEWER	Simon Kingham University of Canterbury Christchurch, New Zealand
REVIEW RETURNED	15-Sep-2015

GENERAL COMMENTS	<p>This is a slightly strange paper. There is no research aim but instead seeks to "outline a study protocol used for a quasi experimental design to evaluate the health impacts of this natural experiment." It then goes on to do this, but include baseline results, and finally talk about what it will do in the future.</p> <p>I would much rather see the focus shifted and instead the paper's aim be to outline the project and report baseline results, rather than just describe the method. This would mean include baseline results in the abstract, rather than merely reporting the methods and include no results.</p>
-------------------------	--

REVIEWER	Danielle Shanahan University of Queensland
REVIEW RETURNED	01-Oct-2015

GENERAL COMMENTS	<p>Large-scale investment in green space as an intervention for physical activity, mental and cardiometabolic health: study protocol for a quasi-experimental evaluation of a natural experiment.</p> <p>This paper presents a method for assessing the impact of the provision of new park infrastructure on resident's wellbeing. It is an excellent proposal, with some very novel ideas that will take the field forward. It is well written, interesting, and will be relevant for researchers working in this field.</p> <p>I have a few comments below:</p> <p>The method focuses on delineating proximity to parks using Euclidean distance. This is the most realistic approach at present in Australia for such a large sample of people, particularly given the limited GIS data sets available for assessing travel distance. However, I suggest that it is important to mention that actual travel distance would be the gold standard as it can differ greatly from</p>
-------------------------	---

	<p>Euclidean distance, and it is plausible to use this method in places such as the UK. This would provide some further guidance for those who elect to use this method in other countries.</p> <p>I would have found it useful to have specified somewhere in the document, perhaps in a table, what health outcomes pair a priori with the different access measures proposed. Linked to this is that there are a range of other facilities other than BBQs that could provide the same kind of service for fostering social cohesion, for example, picnic tables, even children's playgrounds. I was unclear whether the measures proposed were just a sample, or whether this was the complete set. If the latter is true, the authors should consider adding a range of other facilities. If the former is true, this should be clarified in the manuscript. Conversely, it was quite unclear how advertising billboards might influence any of the health outcomes. Some clarification would be useful.</p> <p>A confounding factor in this analysis could be the parkland that is available to people prior to the large-scale new development/provision. I suggest that a baseline should be established for the area and facilities that were available to people, or some effects of new provision may be masked.</p> <p>It has been proposed that the provision of parkland itself in WA could lead to gentrification of neighbourhoods. It is excellent that this study can follow the same people over time, however, I suggest that change in the socio-economic indices might be an important co-variate to consider in this study. This is because I suspect it is highly likely even long-term residents can change health behaviours in response to the change in their social environment, not just because of the addition of parkland.</p> <p>Pg 12 line 20, should read "(e.g. jogging) forms of activity" Pg 15 Line 28 'primarily' should be 'primary' Table 1: I am unclear how some people who live within 2km of any part of parkland have access points 1km away. Are these access points located away from the parkland?</p>
--	---

VERSION 1 – AUTHOR RESPONSE

Reviewer: 1

Reviewer Name: Simon Kingham

Institution and Country: University of Canterbury, Christchurch, New Zealand.

Please leave your comments for the authors below

This is a slightly strange paper. There is no research aim but instead seeks to "outline a study protocol used for a quasi experimental design to evaluate the health impacts of this natural experiment."

It then goes on to do this, but include baseline results, and finally talk about what it will do in the future.

I would much rather see the focus shifted and instead the paper's aim be to outline the project and report baseline results, rather than just describe the method. This would mean include baseline results in the abstract, rather than merely reporting the methods and include no results.

AUTHORS: This is not a traditional manuscript, but a protocol of an ongoing study, which may go some way to explaining the referee's perception of the paper as "slightly strange". We have spelled

out the aim of the study in the introduction. We have added reporting of baseline results in the abstract.

Reviewer: 2

Reviewer Name: Danielle Shanahan

Institution and Country: University of Queensland, Australia.

Please leave your comments for the authors below Large-scale investment in green space as an intervention for physical activity, mental and cardiometabolic health: study protocol for a quasi-experimental evaluation of a natural experiment.

This paper presents a method for assessing the impact of the provision of new park infrastructure on resident's wellbeing. It is an excellent proposal, with some very novel ideas that will take the field forward. It is well written, interesting, and will be relevant for researchers working in this field.

AUTHORS: Thank you for your positive and constructive review of our manuscript.

I have a few comments below:

The method focuses on delineating proximity to parks using Euclidean distance. This is the most realistic approach at present in Australia for such a large sample of people, particularly given the limited GIS data sets available for assessing travel distance. However, I suggest that it is important to mention that actual travel distance would be the gold standard as it can differ greatly from Euclidean distance, and it is plausible to use this method in places such as the UK. This would provide some further guidance for those who elect to use this method in other countries.

AUTHORS: We acknowledge this is a good point and have amended the manuscript where we describe the Euclidean distance technique to say that road and footpath network distances may be incorporated in the future, should appropriate data become available.

I would have found it useful to have specified somewhere in the document, perhaps in a table, what health outcomes pair a priori with the different access measures proposed. Linked to this is that there are a range of other facilities other than BBQs that could provide the same kind of service for fostering social cohesion, for example, picnic tables, even children's playgrounds. I was unclear whether the measures proposed were just a sample, or whether this was the complete set. If the latter is true, the authors should consider adding a range of other facilities. If the former is true, this should be clarified in the manuscript. Conversely, it was quite unclear how advertising billboards might influence any of the health outcomes. Some clarification would be useful.

AUTHORS: The former is true – we used BBQs as an example of a meeting site where social cohesion could be potentially fostered. We have clarified in the manuscript that proximity to other potentially health-relevant sites such as picnic tables and gardens will also be measured. We hypothesise that proximity to an advertising billboard may increase the odds that a person will visit the Western Sydney Parklands and, henceforth, accrue some degree of health benefit. It is, therefore, a source of potential effect measure modification. We have clarified this in the manuscript.

A confounding factor in this analysis could be the parkland that is available to people prior to the large-scale new development/provision. I suggest that a baseline should be established for the area

and facilities that were available to people, or some effects of new provision may be masked.

AUTHORS: We agree and have assessed for this potential confounding in the baseline analyses, finding little evidence that proximity to the Western Sydney Parklands pre-enhancement in 2009 was associated with health and behavioural outcomes. These results are reported in the manuscript. Based on these results, we are confident that this type of confounding is less of a concern than we initially envisaged.

It has been proposed that the provision of parkland itself in WA could lead to gentrification of neighbourhoods. It is excellent that this study can follow the same people over time, however, I suggest that change in the socio-economic indices might be an important co-variate to consider in this study. This is because I suspect it is highly likely even long-term residents can change health behaviours in response to the change in their social environment, not just because of the addition of parkland.

AUTHORS: We agree that change in the socioeconomic composition of the communities proximal to the Western Sydney Parklands could occur after, and potentially as a result of the investment in local green space provision. Tracking of these geographical and demographic changes are the subject of a separate study, which is why we have opted to not report them in this manuscript.

Pg 12 line 20, should read "(e.g. jogging) forms of activity"

AUTHORS: Amended as recommended.

Pg 15 Line 28 'primarily' should be 'primary'

AUTHORS: Amended as recommended.

Table 1: I am unclear how some people who live within 2km of any part of parkland have access points 1km away. Are these access points located away from the parkland?

AUTHORS: Thank you for raising this issue. There is one access point that is a long road entrance set outside the main grounds of the Western Sydney Parklands. As a result, these participants are indeed between 1 and 2km from the green space, but within 1km of an access point. Given that there are only 13 participants we feel that this unusual circumstance is unlikely to influence the results but we will maintain a check on this as the study progresses.

VERSION 2 – REVIEW

REVIEWER	Simon Kingham Uni of Canterbury NZ
REVIEW RETURNED	08-Oct-2015

GENERAL COMMENTS	The reviewer completed the checklist but made no further comments.
-------------------------	--

REVIEWER	Danielle Shanahan University of Queensland
REVIEW RETURNED	05-Oct-2015

GENERAL COMMENTS	A small comment, I was still finding the advertising billboard idea confusing, but then realised they must be advertising the park itself? I suggest adding just a couple of words to specify this a little more clearly.
-------------------------	---