Reviewer's report

Title: Good places for ageing in place: a trans-disciplinary, cross-sectional study investigating the links between physical characteristics of neighbourhoods and older people's wellbeing

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Reviewer: Stephen R Palmer

Reviewer's report:

The authors of this paper are well respected leaders in the field and the subject is an important one and very appropriate for your journal. However there are aspects of the way the paper is written that make it difficult to assess. The main concern is that the measurement instruments and the data are not available for review. I have consulted a colleague statistician on aspects and the following includes his comments.

The "newly designed and tested tool, the NeDeCC" has no reference and therefore we cannot assess its validity. It appears to have been developed specifically for this research. How has it been tested? Self rated health, quality of life and aspects of social cohesion, belonging etc, housing conditions were measured. Were standard validated instruments used ?

Wellbeing is described as being made up of 18 factors (p7) which will be analysed separately against each characteristic of a neighbourhood. Apart from raising issues of multiple comparisons (there are at least 162, probably more), there is no mention of how these are measured, on what scales etc – some are probably binary but what about self-perceived quality of life, perceived community spirit....?

The sample is not described adequately. Purposive sampling does not lend itself to standard statistical analysis as the inferential method is based on the idea of randomness – gone here. The size of 200 is quite small (and no rationale is given for its choice). The later P-values are quite surprising, given this.

Analysis

The methods refer to chi-square tests followed by regression modelling But the former apply to categorical variables and the latter to continuous (unless logistic or ordinal regression is used and that requires special mention). They also refer to multiple regression but I didn’t find results of that.

Tables 1-5 suggest that associations are pretty weak, in terms of the amount of variation explained. But they are rather odd in that they contain negative values of Rsq, which as a squared quantity is surprising, and even some negative p-values, which are impossible. I do wonder about the nature of the data analysed – if the outcome is binary then Rsq is not a good measure and will be low.
They then sum Rsq values –only meaningful if the variables are completely independent, which is utterly implausible.

Given these observations we cannot offer a positive recommendation.