Reviewer’s report

Title: Healthy shopper? Blood pressure testing in a shopping centre Pop-Up in England

Version: 0 Date: 23 Aug 2018

Reviewer: Mark Ashworth

Reviewer’s report:

Dear Editor,

Thank you for asking me to review this paper. The approach and analysis are novel and challenge the current reactive healthcare system (which under-diagnoses the true prevalence of hypertension) with an investigation of a pro-active approach to detecting possible hypertension. Moreover, the analysis cleverly links case detection rates with various measures of community unhealthiness. Specific comments:

1) Introduction: there is very little discussion of the NHS Health Check. This should be described in more detail (age range, frequency, how provided, uptake rates, health inequalities, etc). Because this, in effect, is a national prevention programme. But response rates are low. And current research shows that those at highest CVD risk are least likely to attend. Hence the importance of this study, proactively seeking out 'patients' in the community.

2) Methods. I think this needs a more scientific description. It should begin with a description of the study: cross sectional survey data, etc. As it stands, it begins with a description of 'Bluedog Productions' which reads a bit like a commercial advertising blurb.

3) Methods. I have some reservations about the methods used to obtain a BP reading (pg6). There is no mention of cuff size (introducing possible bias based on obesity - a standard cuff size will produce a BP reading which is higher than the true reading). There is no reference to NICE Clinical Guideline 127 which recommends: "Section 1.2.2 If blood pressure measured in the clinic is 140/90 mmHg or higher: Take a second measurement during the consultation. If the second measurement is substantially different from the first, take a third measurement. Record the lower of the last two measurements as the clinic blood pressure. [2011]" A study in which 2 or 3 readings had been taken, according to CG127, would have been stronger.

4) Discussion: this is an important study drawing attention to the social determinants of high blood pressure. However, the limitations are poorly discussed. There is no discussion about cuff size and lack of second/third BP recording. This is important because the differences between 'healthy' and 'unhealthy' locations selected for this study may have arisen from differences in obesity; also from differences in white coat hypertension rates (which plausibly could be higher in more deprived areas where the shoppers were less familiar with engaging with health professionals). The authors acknowledge the lack of ethnicity data which is also likely to have skewed results; but in stating this limitation they should elaborate about why ethnicity is
important and that the Black population have higher baseline BP values (Carapeti et al) - hence the importance of omitting this variable.

5) Finally, the analysis and discussion do not make clear the contribution of the known hypertensive patients to the final results. Almost half the sample already had either diagnosed or possible hypertension. Was the study merely picking up on poor BP control in those patients already known to be hypertensive, in poorer areas. This distinction is important. Either the effect detected by this study reflects possible undiagnosed hypertension; or possible poor control of known hypertension/suspected hypertension. One is a community detection issue. One is a medication adherence and Long Term Condition management issue. Both have substantial public health importance. But the authors should either offer both explanations of their findings. Or re-analyse the results and determine which group (the two groups are identified in Table 1) are driving the differences between wealthier/poorer areas.

6) Overall, there are substantial limitations to this paper. But it is refreshingly novel and draws important attention to the current lack of proactive screening, the underdiagnosis of hypertension and the social determinants of high BP.

**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.

No

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

No

**Are you able to assess any statistics in the manuscript or would you recommend an additional statistical review?**
If an additional statistical review is recommended, please specify what aspects require further assessment in your comments to the editors.

I am able to assess the statistics

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