

## PEER REVIEW HISTORY

BMJ Open publishes all reviews undertaken for accepted manuscripts. Reviewers are asked to complete a checklist review form ([see an example](#)) and are provided with free text boxes to elaborate on their assessment. These free text comments are reproduced below. Some articles will have been accepted based in part or entirely on reviews undertaken for other BMJ Group journals. These will be reproduced where possible.

### ARTICLE DETAILS

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| <b>TITLE (PROVISIONAL)</b> | Hypertension Prevalence, Awareness, Treatment, and Control in National Surveys from England, the USA, and Canada, and Correlation with Stroke and Ischemic Heart Disease Mortality        |
| <b>AUTHORS</b>             | Joffres, Michel; Falaschetti, Emanuela; Gillespie, Cathleen; Robitaille, Cynthia; Loustalot, Fleetwood; Poulter, Neil; Mcalister, Finlay; Johansen, Helen; Baclic, Oliver; Campbell, Norm |

### VERSION 1 - REVIEW

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| <b>REVIEWER</b>        | Renata Cifkova<br>Head<br>Center for Cardiovascular Prevention<br>Charles University in Prague, First Faculty of Medicine and Thomayer Hospital<br>Prague<br>Czech Republic<br><br>No competing interest to be declared. |
| <b>REVIEW RETURNED</b> | 20-Jul-2013  |

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| <b>GENERAL COMMENTS</b> | <p>The manuscript compares recent data on the prevalence, awareness, treatment, and control of hypertension in England, the USA, and Canada, and correlates these to mortality from stroke and ischemic heart disease in the three countries.</p> <p>Figures 2 and 3 construct equations and straight lines from three points, which may be questionable from the mathematical point of view.</p> <p>The authors' statement about the differences by measuring BP with a conventional sphygmomanometer and an automated sphygmomanometer (BpTRU) being small is euphemistic (p. 11, last para). In the reference, which is quoted (Myers et al. 2008), the difference between the two devices was 3/3 mmHg and was significant (<math>p &lt; 0.001</math>).</p> <p>There is no doubt that Canada has the lowest population mean BP, the lowest prevalence, and the best control of hypertension from the three countries, but the difference between the US and Canada would be smaller when using the same BP measurement. This should be mentioned in the Discussion section.</p> <p>Minor comments:</p> <p>p. 8, lines 41-43 "Rates of both outcomes were inversely related to the mean SBP in each country" (Figure 2) ... should read ... Rates of both outcomes were inversely related to the mean SBP in each country"</p> |
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|  | <p>Figure 3 has a wrong heading “Stroke and IHD mortality by country prevalence of hypertension awareness, treatment and control” ... should read ... “Stroke and IHD mortality by country prevalence of hypertension awareness, treatment and control in treated individuals.”</p> <p>Figure 3, last column, description of the horizontal axis should be corrected as follows:<br/>“Control of hypertension in treated individuals by sex”</p> <p>Figure 3, last column, upper field .... “UK” with the diamond symbol should be replaced by “England”</p> |
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| <b>REVIEWER</b>        | <p>Dr Wayne Sunman<br/>Consultant Stroke Physician<br/>Nottingham University Hospitals NHS Trust<br/>United Kingdom</p> <p>No competing interests. I have known Prof Poulter since working at St Mary's Hospital, London in 1988.</p> |
| <b>REVIEW RETURNED</b> | 24-Jul-2013   |

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| <b>THE STUDY</b>        | <p>In table 1, the meaning of multistage is unclear.<br/>Typos: line 10 page 4, "country" should be "country's" and line 10 page 21, "no" should be "not" and in line 1 page 24 (Appendix 1), the table title might be clearer if "Distribution of" is replaced by just "Mean".</p>   |
| <b>GENERAL COMMENTS</b> | <p>You made no specific reference to the differences in blood pressures in the in the 20 to 24 year olds. There is a large difference, which then persists through life (appreciating that we not in fact pursuing a cohort through life). I would have valued your comments on this; I wonder if you might have changed the emphasis of your conclusions a little. What is known of the lifestyles of young adults in the three countries?</p> |

## VERSION 1 – AUTHOR RESPONSE

First, we appreciate the reviewers' comments and suggestions.

Reviewer: Renata Cifkova

“Figures 2 and 3 construct equations and straight lines from three points, which may be questionable from the mathematical point of view. “

While constructing a line with three points has some limitations, we stated the level of significance needed, and added this limitation on page 12 “We acknowledge the limitation of using three points for our mortality graphs, which require a high level of correlation to be statistically significant.”

“The authors’ statement about the differences by measuring BP with a conventional sphygmomanometer and an automated sphygmomanometer (BpTRU) being small is euphemistic (p. 11, last para). In the reference, which is quoted (Myers et al. 2008), the difference between the two devices was 3/3 mmHg and was significant (p < 0.001). “

This is still a small difference, and we agree that it can make a difference in terms of prevalence

figures. Whether this difference is statistically significant or not depends on the sample size. We replaced “small” with “relatively small”.

There is no doubt that Canada has the lowest population mean BP, the lowest prevalence, and the best control of hypertension from the three countries, but the difference between the US and Canada would be smaller when using the same BP measurement. This should be mentioned in the Discussion section.

We added after relatively small “but might reduce the differences between the US and Canada”

Minor comments:

“p. 8, lines 41-43 “Rates of both outcomes were inversely related to the mean SBP in each country” (Figure 2) ... should read ... Rates of both outcomes were inversely related to the mean SBP in each country” “

It is not clear what is meant by this comment. Reference to (Figure 2) seems relevant in this context.

“Figure 3 has a wrong heading “Stroke and IHD mortality by country prevalence of hypertension awareness, treatment and control” ... should read ... “Stroke and IHD mortality by country prevalence of hypertension awareness, treatment and control in treated individuals.”

Figure 3 refers to all individuals with hypertension, not just those treated.

“Figure 3, last column, description of the horizontal axis should be corrected as follows:

“Control of hypertension in treated individuals by sex”

Same comment as above, this refers to all hypertensives, not just those treated.

“Figure 3, last column, upper field .... “UK” with the diamond symbol should be replaced by “England”  
Replaced

Reviewer: Dr Wayne Sunman

“In table 1, the meaning of multistage is unclear.”

We removed the heading “frame” to avoid the confusion and removed postal code in the column as it could be unclear. Now multistage refers to “Sampling” in the column heading.

“Typos: line 10 page 4, “country” should be “country’s” and line 10 page 21, “no” should be “not” and in line 1 page 24 (Appendix 1), the table title might be clearer if “Distribution of” is replaced by just “Mean”.”

Changes made

“You made no specific reference to the differences in blood pressures in the in the 20 to 24 year olds. There is a large difference, which then persists through life (appreciating that we not in fact pursuing a cohort through life). I would have valued your comments on this; I wonder if you might have changed the emphasis of your conclusions a little. What is known of the lifestyles of young adults in the three countries?”

This is an important point and we added comments in the abstract and the discussion, with two additional references. We also added in the conclusion “A greater focus on prevention of high blood pressure in the younger age groups is also necessary”.

However we did not find data on the differences in lifestyle in young adults in the 3 countries, outside

of obesity, reason why we suggested we need more information on the interaction between the different determinants of hypertension.