

## 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

<b>TITLE (PROVISIONAL)</b>	Changes in cardiovascular risk factors in relation to increasing ethnic inequalities in cardiovascular mortality: comparison of cross-sectional data in the Health Surveys for England 1999 and 2004
<b>AUTHORS</b>	Bhopal, Raj; Humphry, Roger; Fischbacher, Colin

### VERSION 1 - REVIEW

<b>REVIEWER</b>	<p>Therese Tillin Lecturer Clinical Epidemiology International Centre for Circulatory Health Imperial College London UK</p> <p>I have no competing interests.</p>
<b>REVIEW RETURNED</b>	12-Jul-2013

<b>THE STUDY</b>	<p>This is an important topic and has been addressed as far as is possible given the paucity of data to illustrate time trends in cardiovascular risk in British ethnic minorities . The manuscript is clearly written , although I found it rather lengthy and, in places repetitive, given the limited amount of data and the need for cautious interpretation.</p> <p>I think it would be helpful to bring into the main text the numbers of people who gave blood samples and who underwent BP and anthropometric measurements- from the appended material it is clear that these numbers are substantially smaller than the number of people interviewed e.g triglyceride levels were available , in 1999 and 2004 respectively, for only 57 and 124 Black Caribbean men and 84 and 187 Indian Asian men - I'm not sure how many readers would read through the appendices. I would urge even more caution in interpretation given these very small sample sizes for some risk factors.</p> <p>The HSE 2004 report (<a href="https://catalogue.ic.nhs.uk/publications/public-health/surveys/hea-surv-ethn-min-eng-2004/hea-surv-ethn-min-eng-2004-rep-v1.pdf">https://catalogue.ic.nhs.uk/publications/public-health/surveys/hea-surv-ethn-min-eng-2004/hea-surv-ethn-min-eng-2004-rep-v1.pdf</a>) shows tables comparing 1999 and 2004 findings for the ethnic minority groups- these comparisons include diabetes, smoking, anthropometrics, BP/hypertension, physical activity, lipids, HbA1c, CRP, fibrinogen, Hb, ferritin, glucose, general health(self report) . The HSE report also notes that age profiles of the ethnic minorities may differ over the 2 time periods and that where appropriate they have made comparisons stratified by age category. However, I appreciate that the HSE comparative tabulations do not attempt to give an overview and that they compare actual mean values rather than differences between 1999 and 2004 without attempting to draw conclusions regarding the significance or importance of any differences.</p>
<b>RESULTS &amp; CONCLUSIONS</b>	Whilst I strongly agree that further research into ethnic inequalities is

	urgently needed, I would be interested to know what the authors had expected to find in terms of changes in risk factors over the period 1999-2004 and how various public health initiatives might have been expected to impact on the general population/ethnic minorities during the period. I think that some initiatives eg guidelines around physical activity and QoF might have been introduced too late to affect 2004 findings. Did you consider inclusion of fruit and vegetable consumption, which might have been pertinent following the '5- a day' campaign introduced in 2000?
<b>GENERAL COMMENTS</b>	I agree with the authors' response to an earlier reviewer that these data would not serve well to build ethnically-appropriate risk prediction scoring (were such a score to be agreed).

<b>REVIEWER</b>	Professor Deepak Bhatnagar Consultant in Diabetes and Metabolism The Royal Oldham Hospital United Kingdom
	I have no conflict of interest to declare
<b>REVIEW RETURNED</b>	16-Jul-2013

<b>GENERAL COMMENTS</b>	<p>This paper examines the pattern of change in cardiovascular risk factors in ethnic minorities reported in the Health Surveys for England between 1999 and 2004.</p> <p>The title is unwieldy. It should be simplified and also corrected to say Health Surveys 'for' England rather than 'of England'.</p> <p>The methods used to analyse data appear robust. There are obvious drawbacks to the data available in the Surveys, particularly for certain ethnic minorities. The authors are aware of the limitations that this places on their assessments.</p> <p>The introduction reads well and rationalises the need for the proposed analysis.</p> <p>The argument presented in Page 5; para2: It is right to focus the need for most change in groups with the highest prevalence of CVD risk factors, but a quicker decline in these groups may not be necessarily expected to the same degree as the general population. Each group will have its own momentum of 'change' determined not just by access to information, but also willingness to change.</p> <p>Please provide reference for the Stockport data (page 5 line 51)</p> <p><b>Methods and Results</b> The authors document the variability in the pattern of change in CV risk factors amongst different ethnic minorities. They highlight that while the NSFs acknowledge need to tackle CV risk factors in certain ethnic groups, there is much to be done in practical terms on the ground to decrease inequalities compared to the general population. This is easier said than done despite an understanding of the causes that contribute to excess CVD risk factors in certain populations. There is already an extensive report from the datasets used in the current analysis published previously (reference 9)</p> <p>It would read better if instead of the word 'fastest' (used to describe change) 'most' or 'quicker' or 'better' are used in the various places</p>
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	<p>in the text.</p> <p>The visual presentation of the results can perhaps be simplified. The data in the tables is not easy to 'take in' given the percentage change in the large number of parameters. The 'block' figures do complement the tables, but the summary entitled ' No. of RFs where change in inequality was for the worse/better or none' could be simplified</p> <p>The discussion is structured, although I thought that the last section on implications and conclusions could be shortened. The discussion would be enhanced by a debate on how to tackle what we already know in these populations:</p> <ol style="list-style-type: none"> <li>1. I would be surprised if there was a lack of awareness of the issues amongst ethnic minorities. I would speculate that it is more to do with acculturation, lack of adjustment and wider social acceptance, factors not too dissimilar to those affected or disadvantaged by poverty everywhere. In ethnic minorities this would be further confounded by differences between new and established migrants and household structures amongst ethnic minorities.</li> <li>2. The discussion could also explore or highlight the case for access to data 'locked' in GP register systems and other NHS databases and sources of bioinformatics to mine data for ethnic minorities.</li> </ol>
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**VERSION 1 – AUTHOR RESPONSE**

Reviewer: Therese Tillin

This is an important topic and has been addressed as far as is possible given the paucity of data to illustrate time trends in cardiovascular risk in British ethnic minorities . The manuscript is clearly written , although I found it rather lengthy and, in places repetitive, given the limited amount of data and the need for cautious interpretation.

2 We have reduced repetition-at least a couple chunks of text have been deleted as well as a few words and sentences here and there. Furthermore, we have have added further notes of caution.

I think it would be helpful to bring into the main text the numbers of people who gave blood samples and who underwent BP and anthropometric measurements- from the appended material it is clear that these numbers are substantially smaller than the number of people interviewed e.g triglyceride levels were available , in 1999 and 2004 respectively, for only 57 and 124 Black Caribbean men and 84 and 187 Indian Asian men - I'm not sure how many readers would read through the appendices. I would urge even more caution in interpretation given these very small sample sizes for some risk factors.

3 We have explained how sample sizes differ, provided exemplar numbers and emphasized the small size of samples in the 4th paragraph of methods.

The HSE 2004 report (<https://catalogue.ic.nhs.uk/publications/public-health/surveys/hea-surv-ethn-min-eng-2004/hea-surv-ethn-min-eng-2004-rep-v1.pdf>) shows tables comparing 1999 and 2004 findings for the ethnic minority groups- these comparisons include diabetes, smoking, anthropometrics, BP/hypertension, physical activity, lipids, HbA1c, CRP, fibrinogen, Hb, ferritin,

glucose, general health(self report) . The HSE report also notes that age profiles of the ethnic minorities may differ over the 2 time periods and that where appropriate they have made comparisons stratified by age category. However, I appreciate that the HSE comparative tabulations do not attempt to give an overview and that they compare actual mean values rather than differences between 1999 and 2004 without attempting to draw conclusions regarding the significance or importance of any differences.

4 The inconsistent and unsystematic approach in the HSE reports provided the motivation and need to do this work, and we have noted this in the introduction.

Whilst I strongly agree that further research into ethnic inequalities is urgently needed, I would be interested to know what the authors had expected to find in terms of changes in risk factors over the period 1999-2004 and how various public health initiatives might have been expected to impact on the general population/ethnic minorities during the period. I think that some initiatives eg guidelines around physical activity and QoF might have been introduced too late to affect 2004 findings. Did you consider inclusion of fruit and vegetable consumption, which might have been pertinent following the '5- a day' campaign introduced in 2000?

5 Public health initiatives to tackle the established risk factors have been emphasized at least since the 1980s with redoubling of efforts after the NSF for CHD was published in 2000. We have strengthened the citation of literature on this point at the end of the introduction. So we would hope for improvement in every risk factor in every ethnic group with at least similar rates of beneficial change. In practice, from general reading, we knew this was not true. We did not include fruit and vegetable consumption because it is not an established cardiovascular risk factor.

I agree with the authors' response to an earlier reviewer that these data would not serve well to build ethnically-appropriate risk prediction scoring (were such a score to be agreed).

6 Thank you.

Reviewer: Professor Deepak Bhatnagar

This paper examines the pattern of change in cardiovascular risk factors in ethnic minorities reported in the Health Surveys for England between 1999 and 2004.

The title is unwieldy. It should be simplified and also corrected to say Health Surveys 'for' England rather than 'of England'.

7 Thank you for this correction and comment. The new title is, we think, clearer and more accurate.

The methods used to analyse data appear robust. There are obvious drawbacks to the data available in the Surveys, particularly for certain ethnic minorities. The authors are aware of the limitations that this places on their assessments.

The introduction reads well and rationalises the need for the proposed analysis.

The argument presented in Page 5; para2: It is right to focus the need for most change in groups with the highest prevalence of CVD risk factors, but a quicker decline in these groups may not be necessarily expected to the same degree as the general population. Each group will have its own momentum of 'change' determined not just by access to information, but also willingness to change.

8 We have rephrased to differentiate between a need to achieve a goal and reality of actually

achieving it. Towards the end of the discussion, we have acknowledged the challenges, as advised by the referee.

Please provide reference for the Stockport data (page 5 line 51)

9 This was reference 25 and this is now cited properly.

#### Methods and Results

The authors document the variability in the pattern of change in CV risk factors amongst different ethnic minorities. They highlight that while the NSFs acknowledge need to tackle CV risk factors in certain ethnic groups, there is much to be done in practical terms on the ground to decrease inequalities compared to the general population. This is easier said than done despite an understanding of the causes that contribute to excess CVD risk factors in certain populations. There is already an extensive report from the datasets used in the current analysis published previously (reference 9)

See responses 8 and 4.

It would read better if instead of the word 'fastest' (used to describe change) 'most' or 'quicker' or 'better' are used in the various places in the text.

10 Text altered as advised.

The visual presentation of the results can perhaps be simplified. The data in the tables is not easy to 'take in' given the percentage change in the large number of parameters. The 'block' figures do complement the tables, but the summary entitled 'No. of RFs where change in inequality was for the worse/better or none' could be simplified

11 The solution we have found is to place the numbers for worse, better, none in their own rows. We think this simplifies matters.

The discussion is structured, although I thought that the last section on implications and conclusions could be shortened. The discussion would be enhanced by a debate on how to tackle what we already know in these populations:

We have taken this advice, and incorporated some of the ideas in the final paragraph. However, we thought that a debate on how to tackle what we already know was beyond the scope of this paper, which is quite discursive already.

1. I would be surprised if there was a lack of awareness of the issues amongst ethnic minorities. I would speculate that it is more to do with acculturation, lack of adjustment and wider social acceptance, factors not too dissimilar to those affected or disadvantaged by poverty everywhere. In ethnic minorities this would be further confounded by differences between new and established migrants and household structures amongst ethnic minorities.

2. The discussion could also explore or highlight the case for access to data 'locked' in GP register systems and other NHS databases and sources of bioinformatics to mine data for ethnic minorities.

12 We have briefly made the case in relation to risk factors in primary care records.

13 Finally, we have recognized the work of the referees in our acknowledgements. We trust this is acceptable.