Author's response to reviews

Title: Socioeconomic differences in mortality amenable to health care among Finnish adults 1992-2003: 12 year follow up using individual level linked population register data

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Author's response to reviews: see over
Dear Dr Pappa

Re: Manuscript number

SOCIOECONOMIC DIFFERENCES IN MORTALITY AMENABLE TO HEALTH CARE AMONG FINNISH ADULTS 1992-2003: 12 year follow up using individual level linked population register data. Alison K McCallum1, Kristiina Manderbacka2, Martti Arffman2, Alastair H Leyland3, Ilmo Keskimäki2

Thank you very much for considering the manuscript and for the helpful comments made by the reviewers and by yourself. I have set out our response to these point by point and highlighted the alterations in the text. Two expert colleagues reviewed the manuscript and I have incorporated the changes they suggested to improve the flow and clarity of the text. I have appended the figures as suggested and apologise for misreading the instructions.

I am pleased that both reviewers were happy with the overall quality of the paper and that one, Martin Tobias, who is one of the main internationally recognised experts in this field, identified only discretionary revisions. I hope that we have addressed all of the comments and suggestions adequately.

Bjørn Heine Strend

Major compulsory revisions

1. Definition of amenable deaths
The focus of our paper is on socioeconomic inequalities in mortality amenable to health care intervention. This author identifies the importance of smoking prevention in the aetiology of COPD and thus COPD related death and highlights a difficulty in discerning the role of healthcare in the reference cited: ‘The Australia and New Zealand Atlas of Avoidable Mortality.’ On reflection, we agree that this is confusing and have instead cited alternative work from the same group. We have also explained the rationale for including COPD in more detail. Premature death classified primarily as due to COPD is rare in Finland (fewer than 20 cases per year), but because such deaths are socio-economically patterned, they make a modest but important contribution.

2. Increased socioeconomic gradient in mortality amenable to healthcare
The focus of our paper was on the change in the socioeconomic gradient in amenable mortality across a 12 year period that reflected an economic cycle and thus on relative inequalities. We did examine changes in both relative and absolute inequalities, however, and have added in more detail to reflect this work. We have expanded this
section to show the difference in the average annual rate reduction in amenable mortality for the highest and lowest income groups. While we agree that relative inequalities do not provide a complete picture, we consider that the absolute differences in the age standardised amenable mortality rates and the size of the relative inequalities, which are significantly greater than in other countries with universal health care systems, are of interest to your readers. Our work on amenable mortality builds on previous studies that have highlighted the absolute and relative socioeconomic gradient in treatment rates and the differences in the socioeconomic gradient in elective and emergency care.

3. We agree that absolute inequalities have an important impact on the health of the population. Universal healthcare systems, however, have a duty to ensure that the distribution of interventions reflects the greater level of healthcare need and risk of amenable premature death experienced by more disadvantaged groups. Finland has specific challenges in assuring that its pluralistic system does not impact adversely on access to care, coverage and the ability to meet the costs of co-payments.

Martin Tobias

1. Statistical methods and results
   a. Average annual changes
      We have amended the description to read
      “Average annual changes were obtained from estimates of linear time trends in age-adjusted repeated measures Poisson regression models”

      The annual rate of change appeared fairly linear and while the pattern differed by income group, none of the rules for use of this approach were violated. We considered it appropriate, therefore, to use this method to estimate development over time.

      We hope that this makes the process we followed more explicit. We apologise that this was not clearer and thank the reviewer for reminding us that many readers will be more familiar with trends in their own specialty measured as annual percentage change using ordinary least squares regression.

   b. Inequality metric
      We have described our choice of method more explicitly and thank the reviewer for highlighting this issue.
      In this study we used rate ratios and compared the value for each group with that of the highest income quintile. We used this method because it appeared more suited to the use of tabulated data and because it allowed for clearer comparison with our previous work on socioeconomic inequalities in health service
2. Ischaemic heart disease
   We have added a section describing the overall reduction in premature mortality from coronary heart disease, in the socioeconomic gradient and the changes over time.

3. Confounding by disease incidence
   We have considered this in more detail and reflected on the issues raised by recent work highlighting the socioeconomic gradient in multiple morbidity and its earlier onset.

4. Classification and limitations of amenable mortality
   We reference the work of the AMIEHS programme
   http://amiehs.lshtm.ac.uk/publications/reports/AMIEHS%20final%20report%20VOL%20I.pdf, with which one of the authors (IK) was involved and highlight some of the areas that require further research.

I hope that I have answered all of the areas that you and the referees have identified. Many thanks for the opportunity to submit this revised paper which has been improved by the advice we have received.

Kind regards

Yours sincerely,

Dr Alison K McCallum