Reviewer’s report

Title: Social inequality in mortality: gender and socioeconomic differences in a Brazilian city

Version: 1 Date: 21 October 2011

Reviewer: Mercè Gotsens

Reviewer’s report:

General comments:

Thank you for the opportunity to review this paper which aims to analyse social inequalities in mortality, among residents of a Brazilian city in the period 2004-2008.

The subject of this paper is relevant. As the authors say, there is little similar research from Brazil. I find many areas throughout the manuscript that need revision. The authors use the direct method to standardize mortality rates using the Campinas population by sex as reference population. Then, they compare the rate ratios by sex. But, Adjusted rates can only be compared with each other, when the same reference population is used. Thus, it is necessary to recalculate mortality rates using the Campinas population as reference and rewrite the discussion section according to new results. On the other hand, one of the strengths of this study is to analyse different specific causes of death.

1) Abstract, first paragraph: The objective of this study is not to analyse the impact of social inequalities. It is to identify the magnitude of these inequalities. Thus, it is necessary that the authors rewrite the objective of the study in this section. In addition, in the methods section it should be included the design of the study.

2) Methods, third paragraph: It would be appropriate to justify the selection of these indicators to determine the socioeconomic strata of the 49 areas.

3) Methods, third paragraph: I don’t understand very well how the authors have divided the 49 areas into three groups (low, middle and high strata). The four indicators don’t have the same direction, ie a high value in the proportion of heads of household with less than one year of schooling indicates lower socioeconomic status while a high value in the proportion of heads of household with more than 10 years of schooling indicates otherwise. Is would like confirm this is taken into account when calculating the final score?

4) Methods, third paragraph: It is necessary to explain how the authors have ensured one third of the total population in each stratum. Have the authors calculated tertiles of the variable?

5) Methods, fifth paragraph: Are all deaths assigned a health care unit area? If
not it would be appropriate to specify the percentage of missing.

6) Methods, fifth paragraph: It would be necessary to explain why the authors have chosen individuals over 20 years for the analysis of specific mortality.

7) Methods, fifth paragraph: I understand that the authors have chosen a standard population for men and another for women. Adjusted rates can only be compared with each other, when the same reference population is used. Thus, the authors should calculate again age-adjusted rates using only one reference population if they want to compare rates and rate ratios by sex.

8) Seventh paragraph: Authors should justify why they only have analysed specific mortality with a minimum of 60 cases in each sex.

9) Result, second, third, fourth and fifth paragraph: The authors should include also the confidence interval of RR in the text. In addition, number of decimals of the text should be the same as that of the tables.

10) Result, fifth paragraph: “breast cancer rate was 50% greater in….” Table 5 doesn’t show this value.

11) Result, sixth paragraph: This paragraph belongs to the discussion section. In addition, as I said above these adjusted rates can’t be compared by sex.

12) Discussion, first paragraph: The authors say that the analysis of mortality in Campinas reveals the impact of socioeconomic status on population health. This is not true because the analysis carried out by the authors only reveals the magnitude of the association between mortality and socioeconomic status.

13) Discussion, fourth paragraph, last sentence: “In Brazil, some of this factors...” It would be appropriate to specify what factors the authors refer.

14) Discussion, seventh paragraph, penultimate sentence: “…with rates differences of 79% among men and 94% among women”. The authors should review the article by Singh et al. because it is strange that rate differences take these values. Could it be that this article refers to relative risks rather than rate differences?

15) Discussion, eleventh paragraph: It would be necessary to explain how the results indicate a male premature mortality. Moreover, the authors say that the results show association between social and cultural factors and the adoption of unhealthy behaviours. This statement is incorrect. The results can be explained in part by unhealthy behaviours and these behaviours are influenced by social and cultural factors. On the other hand, in this paragraph the authors also compare the results between men and women. It is important to note that men present higher mortality than women, not only because of being more exposed to certain behaviours but also through the concept of the social construct of masculinity, ie, how men behave in our society, implying that they tend to engage in more behaviours involving risks (for example driving at high speed, consumption of alcohol, etc.) than women, thus increasing their risk of disease,
injury or death. However, this paragraph will only make sense, if the authors calculate age-adjusted rates using a single reference population.

16) The discussion of the results of mortality due to respiratory diseases is not given.

Minor Essential Revisions:

1) Methods, sixth paragraph: Authors should specify what mean ICD-10 (International Classification of Diseases).

2) Methods, eighth paragraph: “mortality rate ratio…” should be “mortality rate ratio (RR).”

3) Discussion, third paragraph: It is necessary to modify the format of the references 14 and 2.

4) Discussion, tenth paragraph: “showed higher mortality rate in affluent areas 20” should be “higher mortality rate in affluent areas”

5) Table 2: “1066” should be “1,066”. In addition, it would be appropriate to use the same number of decimal. In the column "Men-low" number of deaths stratified by age is equal to 956 while total of deaths is 955. In the column "Women-low" number of deaths stratified by age is equal to 591 while total of deaths is 592. Finally, the value 0.83 (CI: 0.76 to 0.89) should be in bold type.

6) Table 5: Last footnote is incorrect

**Level of interest:** An article whose findings are important to those with closely related research interests

**Quality of written English:** Needs some language corrections before being published

**Statistical review:** Yes, and I have assessed the statistics in my report.

**Declaration of competing interests:**

I declare that I have no competing interests