Reviewer's report

Title: Individual Education, Area Income, and Mortality and Recurrence of MI in a Medicare cohort: The National Longitudinal Mortality Study

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Reviewer: Andrew Rundle

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Major Compulsory Revisions

The authors fail to link NLMS and CMS Medicare data in about 20% of the patients. the authors should describe how these patients differ from those included in the analysis. The authors should also consider re-weighting the sample weights for the probability of linkage or incorporating inverse probability weighting for successful linkage into the analyses

The authors report that Median income for all US zip codes was extracted from Census Bureau Summary Tape Files for 1990 and 2000. This is not technically correct - the Census uses Zip Code Tabulation Areas not Postal zip codes. Also was this for home or hospital zip code?

Overall I am not sure how interesting their main finding are.

For the finding that “lower individual level education was associated with increased mortality in women and men 1-5 years after a first apparent MI” I am not sure what the relevance of MI is. It is not clear what these people died of and whether the incident MI or its complications had anything to do with their death. Would we see the same SES gradient for mortality in people who did not suffer an MI? I expect we would.

The tables present an enormous number of analyses and, while I haven’t done the math, the number of bolded findings look to be about what you would expect by chance. For instance the authors report that in women 66-79, in hospital mortality is associated with zip code income, but in reality this is the only bolded finding of the zip code measures and there does not appear to be a trend across quintiles for this particular analysis. This just looks like one RR that happened to be significant. I would have more faith in these analyses if there appeared to be trends across categories of education and zip code income – even if only the comparison between Q5 and Q1 were significant, a visible trend across quintiles would be reassuring.

Also the authors present the results as we observed an association between X and Y in women age 66-79 but not in women age 80+, or we observed an association between X and Y in women but not men, but in most cases the CI across strata overlap – I doubt most of the stratified contrasts they draw are significant.
Level of interest: An article whose findings are important to those with closely related research interests

Quality of written English: Acceptable

Statistical review: No, the manuscript does not need to be seen by a statistician.

Declaration of competing interests:
I declare that I have no competing interests