Reviewer's report

Title: Self-rated Health in Rural Appalachia: Health Perceptions Are Incongruent with Health Status and Health Behaviors

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Reviewer: Peter Byass

Reviewer's report:

This is an interesting paper but includes some underlying methodological concerns, which at least need to be further discussed.

Major essential revisions

The concept of Appalachia features strongly as the basis for these analyses. Although the background mentions that this includes some people across 13 states, we need a map to illustrate Appalachia more clearly. Although West Virginia may be in the heart of Appalachia, are we then supposed to imagine that representatives from all 13 Appalachian states turned up to a fair held in WV? Presumably participants' place of origin was documented, though it is not mentioned in the paper. Maybe the easiest solution would be to show the numbers coming from each state on the map I suggest above. If it is not possible to do this, then the entire notion of health in Appalachia in this paper really falls apart. In any case, the non-random selection of the study population, and the drawbacks to the study associated with this, need further discussion.

There are then further sampling problems associated with the cholesterol tests – only a very small proportion of participants (about 5%) volunteered for this, and there must be serious issues about how representative they may or may not have been. This needs clarifying and/or discussing further.

I appreciate that you have cited references for the validity of self-reported anthropometry, but both of these are almost 30 years old, dating from before the current general concerns about obesity. Is it equally true in today's US population that self-reported measurements are reliable and independent of an individual's obesity? Please discuss further.

Minor essential revisions

“Soda” is not an international concept and needs defining – I suppose you mean a carbonated, sugar-sweetened drink? What would the typical sugar content be, and what is the balance of consumption between sodas containing sugar as opposed to non-calorific artificial sweeteners? Also please note that “oz” is not an international unit of measurement, and needs changing to millilitres.

Level of interest: An article whose findings are important to those with closely related research interests
Quality of written English: Acceptable

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

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