

April 3, 2018

Reply to editors

We thank the editorial board for the opportunity to revise our manuscript. Our responses to the editors' comments are outlined below in regular font with editor's comments in bold font.

**We received a useful set of reviews that we believe can help you revise and improve the manuscript. The general directive is to provide the clarifications, corrections, explanations, and some possible re-analyses requested.**

**R1 scored the manuscript low on theoretical contribution and adequacy of the evidence. Among other issues, they report several concerns: the inclusion of infant mortality, the overestimated role of alcohol, and the lack of a broader discussion on the added value of the lifespan indicators.**

Reviewer 1's comments led us to go deeper into country-specific data quality issues and to explore more substantive explanations about mortality change, particularly in Central Europe. There is always the danger with a large comparative study that important differences between countries get overlooked, and admittedly this was a weakness in the previous version of the manuscript. We appreciated and took each comment seriously, and hope that by addressing each of these issues, and by pushing the different interpretations that come out of lifespan variation as compared to life expectancy, we have ultimately improved the integrity and overall added value of the manuscript. More details can be found in the reply to reviewers section.

**R2 would like the more interesting and important results to be highlighted and/or summarized as well as consideration given to looking at subgroupings of countries.**

As far as possible, we grouped our discussion around 3 broad groupings that each experienced more similar trends: Central Europe, the Baltic countries, and the other former Soviet countries (FSU). We also tried to further highlight the truly exceptional nature of the CEE mortality patterns, while also putting the implications of our findings into a broader international context by contrasting such patterns with typical western patterns.

**R3 asks the authors to consider including cause-specific data from WHO, which would strengthen the analysis further. Please consider following this suggestion.**

We considered this possibility also at an earlier stage of research. Frankly, the ruptures between causes of death over the ICD revisions were so large, that we were worried about the data integrity and felt strongly that it was better to err on the side of caution. In the current version of the manuscript we explain the problems with WHO data in greater detail and have included an online link to figures showing the extent of these ruptures. By doing so, we hope we can bring the problem of unharmonized cause-of-death data to the attention of the research community, so that the value of reconstructed time series of cause of death data can be more fully appreciated.

Thank you again for considering our manuscript.

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