Author's response to reviews

Title: Educational inequalities in young-adult mortality between the 1990s and the 2000s: regional differences in Belgium

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Author's response to reviews: see over
Subject: Submitting article

Dear Prof. Dr. Herman Van Oyen & Tadek Krzywania

Thank you for considering our manuscript, entitled ‘Educational inequalities in young-adult mortality between the 1990s and the 2000s: regional differences in Belgium’, for publication for *Archives of Public Health*.

We are thankful to the reviewers for their in-depth reading and fruitful comments to our paper. We think it has made the key message more clear throughout the paper. We will detail the changes we made to the manuscript in order of the structure of the paper. We have integrated the comments of both reviewers as much as possible.

- **Title**

Reviewer 1 suggested adding the gender dimension to the title. Although there is certainly a gender dimension to educational inequalities in young-adult mortality and we analysed the data separately for men and women, we would rather keep the title in its current form, as we think it catches the essence of the paper. The title is already quite long and it would make it less readable instead.

- **Abstract**

We slightly adapted the abstract, leaving out the sentence on cause-specific mortality as reviewer 2 suggested, and including a statement on the change in educational composition as reviewer 1 suggested, as this indeed is one of the most important finding of this paper.

- **Background**

We thoroughly expanded the *introduction*, to give international readers more insight into the regional inequalities in Belgium and to underline what this paper adds to the current literature on social (and specifically educational) inequalities in mortality.

We deleted the sentence about the health system in Belgium in our introduction, as reviewer 1 suggested to be cautious about it. We think that health systems are an important macro determinant of health, as is detailed by the social determinants of health framework (Solar & Irwin, 2007). However, implementation of the health system in Belgium might differ significantly by region, as prevention policies for example are regionally organised, making our previous statement less pertinent.

We give a bit more background information on the Belgian regions for international readers (p3, line 4-5), and also detail why the BCR is often left out of the analysis but is important to include (p3, line 9-18). This also strengthens our argument about what this paper adds to the literature.

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and helped to describe the research objectives in more detail (p3/4). We also included a paragraph to describe why we focus on educational inequalities (p2, line 12-26).

- Methods

We made use of four-year intervals of follow-up instead of two follow-up periods of 8 years, because we do not want to include mortality at 40 years or older, as the pattern of causes of death changes substantially from external to natural causes in this phase of life. Moreover, this might also impact the pattern of educational inequalities. With four years of follow up, our study population ages to 39 years at most. With four periods of observation, it is also easier to interpret the mortality change between the two census periods. Without the period in-between, one would not know if this change occurred gradually, or is also due to a change in population composition.

We included a table (Table 1) with the distribution of education, nationality of origin and employment situation in each region for men and women separately, as this can provide the readers with more insight into the data at hand, we discuss this briefly p4-5. We dropped the term ‘activity status’, as this was confusingly used next to employment situation. This last term is now used consistently throughout the text.

Although filling out the census questionnaire was compulsory, a share of the population handed this in without giving information on education, employment situation and other questions that were not used in this paper. We performed the analyses both exclusive and inclusive of the missings on the control variables, leading to similar results. The results presented are inclusive of missings.

We detailed the information on the nationality groups on p5, line 10-12.

- Results

We adjusted, corrected and clarified all the issues raised by the reviewers in the result section. Specifically, we tried to systematise the comparison between regions separately for men and women, at the same time restricting the description to the most marked results.

We followed the suggestion of reviewer 2 to include the appendices as Tables in the text, as we are convinced that they contain important complementary information to Tables 2A and B detailing the ASMRs.

We provide some possible explanations as to why mortality in the BCR dropped less among women than among men in the discussion section, p11-12.

- Discussion

We added a paragraph on the results of women (p11-12) and made it clearer whether we discuss either a general finding or a gender-specific finding.

Our data do indeed not allow us to state with any certainty that primary educated persons mainly do consist of seriously ill, handicapped persons, etc., and are, hence, a very health-selective group. We advance this hypothesis, because other authors suggested that this group has become a selective group based on the self-assessed health status of the lowest educated. From our own observations we can deduce that the primary educated have become a small group with high mortality risks and a higher share being in poor self-assessed health or having a long-standing illness, information that is also available in the census and was used in another article of ours.

We tried to advance this more carefully on p12, line 14-16/22-26.

The unavailability of the causes of death for the Walloon Region is a sensitive matter. In this paper, we make use of information on the date of death, collected in the national register. This register does not contain any other information of the deceased. Death certificates are collected and controlled on the regional level since the end of the 1990s. The Flemish region and the Brussels-Capital Region collaborated to classify the causes of death, but the Walloon Region

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arranged it differently and had some years of delay with delivering the data to Statistics Belgium, the organisation which collects and analyses the data at a national level. Currently, most of the years are now available, but we still do not dispose of these data. Our application to use and analyse these data was approved by the Privacy Commission (in September 2014) and we are now awaiting their delivery by Statistics Belgium, which will be in the beginning of 2015. We concentrated all the arguments regarding primary educated persons and early school leavers on p12-13.

- References

We indeed noticed that something went wrong with the reference list, and dropped the duplicates.

Concerning the remarks of the editors, we adapted the tables and graphs according to their suggestions.

The authors declare that none of the authors have any conflicts of interest. This paper has not been published or accepted for publication anywhere else.

Looking forward to receive any further suggestions or questions,

Hannelore De Grande