Reviewer's report

Title: Socioeconomic inequalities in quality of cause-of-death information: A study of ill-defined causes of death in 16 European countries

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Reviewer: Johan Hubert André Van der Heyden

Reviewer's report:

The study of socioeconomic (SE) inequalities in mortality is an important topic in public health research and SE inequalities in ill-defined causes of death need to be explored as well. Especially the international dimension of the data makes that this manuscript provides useful information which warrants publication. I have a few comments, questions and suggestions.

Major compulsory revisions

1) The proportion of deaths from ill-defined conditions is an indicator for the quality of cause-of-death data, but has also been suggested as a potential indicator of access to and use of health services. The latter part could be further elaborated, especially in the discussion section.

2) The impact of SE differences in ill-defined causes of death on the interpretation of SE differences in well defined causes depends also on the proportion of deaths from ill-defined conditions. If SE differences are large, but the overall proportion is small, this will hardly have an impact. This needs to be emphasized.

3) Although the authors refer to a report in which the data are described (could a direct URL link be added to this report?), it is needed to give some further information on the data, especially with respect to sample sizes. There is a big variation in the absolute numbers presented in Table 1. Information on the sample sizes (+ number of total deaths) per country will help to understand why this is the case. I guess there is a large variation in sample sizes between the countries. This will have affected the power to detect SE differences. Could the authors comment on this?

4) I would suggest to distinguish in the results section countries with higher ASMR among the lower educated and countries with higher ASMR among the high educated. Especially the case of Switzerland is notable. Is there any hypothesis for the fact that in Switzerland both among men and among women higher ASMR are found among the high educated?

5) Nothing is mentioned about gender differences. However, in half of the countries inequalities are found in men; for women this is only the case in 2 countries (with even opposite directions). This is worthwhile mentioning in the discussion. Any hypotheses?
6) The sensitivity analysis is useful, but should be moved to the methods and results section. The outcome and interpretation can be addressed in the discussion section.

7) Do the Chi-square tests of independence to assess if the proportion of ill-defined causes of death differed by educational group take into account the three levels of education? If not, is this the appropriate test to be done?

Minor essential revisions

8) The authors state that up to now no study has investigated whether the proportion of ill-defined causes of death differs between socio-economic groups. This statement should be weakened a bit. I did not do a complete literature search, but at least one study in the Netherlands reported a higher proportion of ill-defined causes of death in low-income boroughs [1]. Of course this has never been studied at the same level as in this study.

Discretionary revisions

9) The role of autopsy to reduce the number of ill-defined causes of death is also very clearly demonstrated in a recent study of Seija Ylijoki-Sørensen [2], which could be added to the references.

10) As the authors suggest already in the introduction, the proportion of ill-defined causes of death is not the only indicator of the quality of cause-of-death information. Other forms of misclassification are also important. Therefore it may be appropriate to adapt (shorten) the title in such a way that it is clear that this study investigates essentially SE differences in the proportion of ill-defined causes of death (E.g. Socioeconomic inequalities in the use of ill-defined causes of death in 16 European countries)

Reference List


2. Ylijoki-Sørensen S, Sajantila A, Lalu K, Boggild H, Boldsen JL, Boel LW: Coding ill-defined and unknown cause of death is 13 times more frequent in Denmark than in Finland. Forensic Sci Int 2014, 244C: 289-294

**Level of interest:** An article of importance in its field

**Quality of written English:** Acceptable

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

**Declaration of competing interests:**
No competing interests