Author's response to reviews

Title: Suicide or undetermined intent? - A register-based study of signs of misclassification

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Author's response to reviews: see over
Dear Editor,

We are pleased that the review was favourable regarding the manuscript “Suicide or undetermined intent? - A register-based study of signs of misclassification”, ID: 7449012601032249 and that you are willing to consider a revised version of the manuscript for publication in Population Health Metrics. We appreciate the comprehensive comments and suggestions from the Reviewers. We have revised the manuscript based on these comments, and point by point answers to each comment, and how they have been addressed are listed in this response letter with denoted pages and lines for the revisions. We have put the comments in bold, with response below each comment in green.

All authors have approved the updated revised version of the manuscript and the response letter. We hope that the revised manuscript will be found suitable for publication.

If something still in unclear please do not hesitate to contact me.

Yours sincerely,
Charlotte Björkenstam, on behalf of the authors

Responses to reviewers’ comments:

Reviewer's report  Title: Suicide or undetermined intent? - A register-based study of signs of misclassification  Version: 1  Date: 27 September 2013  Reviewer: Katherine Hempstead

I personally think this is an interesting topic, but I am not sure how broad the interest is in this subject. It is a little bit of a niche subject, and the results do not overturn any previously held views. The authors need to make this much shorter and more concise. 1) I think they should do a multivariate analysis instead of all of the descriptive tables. There are quite a few too many tables and figures - and I think a lot of the figures are not very helpful.

RESPONSE 1) We agree that multivariate analyses could be of value. Our intention was however to perform a descriptive study that could generate new hypothesis and hence, further analyses. In the future analyses we’ll be happy to perform multivariate analyses to get deeper in our investigation. Further, we have removed some of the figures (nr: 2 age women, 3 age men, 4 and 5 time trend for methods, 6 and 7 ration of undetermined intent to suicide, 10 and 11 time trend for poisonings, and 12 ratio of undetermined intent poisonings). The article is now shorter and more concise.

One of the things that make this a potentially interesting study is the existence of national databases on hospitalization and pharmacy use. 2) The authors should make sure that the description of the data sources is understandable to people who are not from Sweden.

RESPONSE 2) We absolutely agree on this point and thank the reviewer for noting this lack of information. We added a short paragraph on this under “Registers” in the method section with a reference.

CHANGES IN TEXT:
First paragraph under the sub title “Registers” in the method section:
Sweden and the other Nordic countries have a long tradition of collecting data on diseases and deaths. We employ epidemiological registers of high quality and covering the whole population and some go as far back as to the 1950s18 (Reference: Rosen M: National health data registers: a Nordic heritage to public health. Scand J Publ Health 2002; 30: 81–85.).

Level of interest: An article whose findings are important to those with closely related research interests
Quality of written English: 3) Not suitable for publication unless extensively edited.
RESPONSE 3) We agree with the reviewer and have now made an attempt in editing.

Statistical review: No, the manuscript does not need to be seen by a statistician.
Declaration of competing interests:
no

Reviewer's report  Title: Suicide or undetermined intent? - A register-based study of signs of misclassification  Version: 1 Date: 15 September 2013 Reviewer: Andrew Page  Reviewer's report:
This paper compares cases of suicide and deaths of undetermined intent in Sweden for the period 1987-2011 in a series of cross-sectional and secular analyses to determine the extent to which misclassification of suicide may be attributable to particular individual socio-demographic or psychiatric factors.
Findings suggest similarities between cases of suicide and deaths of undetermined intent based on comparisons of a selection of routinely collected socio-demographic and psychiatric variables, and authors seem to conclude that the convention of combining suicides and undetermined deaths in descriptive-analytic studies of population suicide trends in Sweden is appropriate. However, this seems to be immediately contradicted (in the both the Abstract and concluding paragraph of the Discussion), by also recommending that separate analyses be conducted for the two broad cause of death classifications. 4)There are substantial differences by ‘method’ when stratified by demographic factors, which might suggest that the latter conclusion is more appropriate. The authors need to clarify this apparent contradiction.
RESPONSE 4)We are grateful for the remark on this apparent mistake and have corrected this. We made corrections in both the abstract and in the conclusion in the discussion section.

CHANGES IN TEXT:
In the conclusion section in the abstract we now state:
By analyzing Swedish unique high validity population-based register data we found several differences in background variables between deaths classified as suicide and deaths classified as undetermined intent. However, we were not able to clearly distinguish these two death manners. For future research we suggest separate analyses of the two different deaths manners in addition to the combined analyses.

In the conclusion in the discussion section, very last paragraph.
By analyzing Swedish unique high validity population-based register data we found several differences in background variables between deaths classified as suicide and deaths classified as undetermined intent. However, we were not able to clearly distinguish these two death manners. For future research we suggest, in addition, separate analyses of the two different deaths manners.

The definition of what ‘undetermined’ means should be provided in the ‘Material and methods section’, not only the ICD coding. To what extent have these classifications changed over time?

5) A clear description of these key classifications will give the reader a more nuanced sense of what deaths are included in these categories.

RESPONSE 5) We thank the reviewer for making us aware of this matter. We added a sentence on the definition.

CHANGES IN TEXT: We added a sentence on the definition under “Study population” in the methods section, first paragraph, and second sentence.

ICD defines undetermined intent as “events where available information is insufficient to enable a medical or legal authority to make a distinction between accident, self-harm and assault”. No changes in the rules of classification have taken place during the time period studied.

6) Is Institutional Ethics Committee approval required to use individual identifiers to link multiple sources of routinely collected information in Sweden? Does this need to be noted in the Methods section?

RESPONSE 6) Yes, ethical vetting is required for studies linking individual data (though there is an exception for studies on deceased persons). However, we have ethical approval for this study, and apologize for not clearly stating this. We added a paragraph on ethical vetting in the methods section as the very first paragraph.

CHANGES IN TEXT: Page 7, first paragraph.

“Ethics statement

The study population was based on linkage of several public national registers. Ethical vetting is always required when using register data in Sweden. The ethical vetting is performed by regional ethical review boards and the risk appraisal associated with the Law on Public Disclosure and Secrecy is done by data owners. The ethical review boards can however waive the requirement to consult the data subjects (or in case of minors/children the next of kin, careers or guardians) directly to obtain their informed consent, and will often do so if the research is supported by the ethical review board and the data has already been collected in some other context. According to these standards in Sweden this project has been evaluated and approved by the Regional Ethical Review Board of Karolinska Institutet, Stockholm, Sweden.”

7) What was the rationale for selecting the group of comparison (or exposure) variables? These appear to be selected without much a priori reasoning. There are a number of potentially important exposures that were excluded (for example, employment status).

RESPONSE 7) We agree that this is highly relevant. We picked those we found most relevant and the ones that were available in the registers we had access to.
Changes in Text:
We added a sentence on this under “Study population” in the method section page 8, first paragraph:
We chose background variables in accordance to relevance and what is available in the routinely collected registers we had access to.

8) Also, to what extent is there differential misclassification of these exposure variables by jurisdiction (or by Register)? Have definitions or coding practices changed over the study period (1987-2011)? Could this be validated, e.g. sex, age, country of birth and marital status would be routinely collected in more than one Register? Much is made of the potential misclassification in the death data, but such misclassification presumably is also evident in the comparison data.
Response 8) This is a highly relevant remark. To us it is so natural that our nationwide routinely collected health data registers have high quality. Of course this is not obvious to the general reader.

Changes in Text:
We added a sentence in the limitation part of the discussion section page 15 in the end of the first paragraph:
Sweden has a long tradition of routinely collecting nationwide data and the backgrounds variables we use are obtained from such registers with high quality and validity.

9) The first paragraph of the Discussion section is unclear and contradictory.
Response 9) We thank the reviewer for making us aware of this apparent mistake.

Changes in Text:
We rephrased the first paragraph:
This population based study showed differences in marital status, educational level, country of birth, previous hospitalization for self-inflicted harm and substance abuse as well as for prior psychiatric in-patients care and use of psychotropics between suicides and deaths classified as undetermined intent. Despite the differences in background variables, this information does not seem to be enough to establish guidelines on what share of undetermined intents should be interpreted as suicides.

10) The Discussion section focusses on other similar comparative studies in other European contexts. However there is no methodological critique of the datasets that are used in the analysis in terms of the validity and accuracy of comparison (exposure) variables and cause of death determination, or much focus on the secular trend analyses in this regard. Nor is there an interpretation of the likely causes of observed socio-demographic differences between suicide and deaths of undetermined intent.
Response 10) We agree that this is was lacking in the first manuscript.

Changes in Text:
We added the following sentence in the limitation section in the discussion:
Sweden has a long tradition of routinely collecting nationwide data and the backgrounds variables we use are obtained from such registers with high quality and validity.
Further we added a section in the discussion page 17 second paragraph:

*We know from previous studies that there is a social gradient in suicides. In our study we compare amongst other educational level. If we had not found a social gradient in undetermined intents, that would have been a sign of these deaths not being suicides. Our results did however not let us draw any such conclusions despite our large cohort with unique high quality data. Neither do our results, despite statistically significant differences in most background factors, allow us to establish a certain percentage of undetermined intents that should be regarded or interpreted as suicides.*

**Level of interest:** An article whose findings are important to those with closely related research interests

**Quality of written English:** Needs some language corrections before being published

**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