Author’s response to reviews

Title: Co-morbidity and health care utilisation five years prior to diagnosis for depression A register-based study in a Swedish population

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

We hereby resubmit our paper "Comorbidity and health care utilisation five years prior to diagnosis for depression – A registerbased study in a Swedish population".

Below follows a point – by- point response to the concerns raised by the reviewers. We hope that our response will satisfy the valuable comments from the reviewers.

We have colored changes made in the revised manuscript. The results part of the paper is rewritten and language corrections are made. We hope that the manuscript conforms to the journal style including the figures 1-3 in the manuscript.

Reviewer: Upali W. Jayasinghe

1. Statistical analyses, table 2

We have replaced table 2 and the new table 2 includes three models in order to follow the different steps in the calculations. In the new table 2 the physician visits five years before diagnosis was statistically significant even when adjusting for the number of visits the year before diagnosis but the odds ratios were rather low (Model 3, Table 2). Model 3 includes the calculations which the reviewer wanted to see. (see also page 9)

2. Practical significance of the effects

We have considered the practical significance of the effects and we think that the best way to do this is to refer to the size of the odds ratios. This is done on page 9.

3. The dependent variable used in the logistic regression

The dependent variable used in the logistic regression is a diagnosis of depression. We have now expressed this in the method part of the paper (page 8).

4. Co-morbidity was included in the model but was found insignificant.

In the discussion part (page 13) we have explained the associations between comorbidity and physician visits in the following way: In this study the number of
physician visits and RRCW were highly correlated, which is not so unexpected since RRCW is constructed to predict health care utilisation. One consequence was that physician visits and RRCW could not be included in a regression model simultaneously without a considerable loss in statistical power.

5. Age and the likelihood of depression diagnosis

We earlier mentioned that the likelihood of receiving a depression diagnosis in 2006 was associated with high or low age. We agree that this statement was not correct. Table 2 has been changed also concerning the reference age group (60-69) and we now refer to the new table concerning the likelihood of receiving a depression diagnosis.

Reviewer: L Hakkaart-van Roijen

1. The control group differed for gender, age and socioeconomic status compared with the depression diagnosis group and these difference were not corrected for

The control group was created to represent a normal population and it was expected that this group should be different concerning gender, age and socioeconomic status compared with the depression diagnosis group. In all the analyses performed (except in table 1) we have adjusted for gender, age and socioeconomic status which is mentioned on several places in the manuscript and also in the methods (page 8).

2. Comorbidity index was based on the ACG-system and need further notification

Comorbidity index was based on the ACG-system which is described on page 5.

References to the ACG-system have been added since our first manuscript was sent to the Journal. We now refer to earlier articles from BMC Public Health (2006,6:35, 2006,6:36 and BMC Public Health 2009,9:347 ). With regard to the purpose of our paper we think that the description of the methodology concerning the ACG-system give enough information for the reader.
One result of the our study is that the correlation of physician visits and comorbidity index was very high (mentioned on page 13)


The excluded diagnoses are of quite another dignity (bipolar disorders, chronic depression, etc) compared to the ordinary depression diagnosis which we used in this study (F 32). The F 32 diagnosis also has a high frequency in primary care. The other diagnoses and more severe diagnoses are not of interest in this study. In our material the F32 diagnosis highly dominated (72 percent of all the F 31- F 39 diagnoses).

4. The authors fail to present the cost per patient for the period

In the method part of the paper it said that cost per patient during the period is used for 2005-2007. Cost per patient during the whole period (2001-2005) was not available. We have used the amount of health care (e.g. physician visits and hospital days) to illustrate health care consumption during the whole period. The percentage of the main medical health services was not of interest for our purpose of the study.

5. In the last section of the results it is stated that average cost per patient were SEK 25600 and SEK13400 respectively

It is correct that it is costs per patient per year. We have no costs for the whole period so in the discussion section we have now written (page 10): “Patients who received a diagnosis of depression used twice the amount of health care (e.g. physician visits and hospital days) during the five year period prior to diagnosis compared to the control group. “

6. The figures need some improvement

The figures (1-3) have been changed and we would like to listen to the editor that it is according to the journal style.

7. Psychiatric diagnoses have been found to be underreported. Drug use might be a predictor of a future depression. Would be of value to assess this hypothesis.

It is an interesting hypothesis that drug use might be a predictor of a future depression diagnosis and we have a reference to Bingefors et al related to this hypothesis (ref 21). We lack data for drug use during the period before 2005 in our data register. In our research group we have discussed to perform a new study with available drug use data from 2005 and onwards.
8. **Meaning of the result for health care policy**

We have in the end of the discussion stressed the *clinical* importance of finding early signs of depression. Further the health policy implication of this is added (page 14)

With the changes above we hope that our paper can be considered for publication in your journal. Of course we are prepared to make further changes if needed.

Sincerely

David Andersson John Carstensen, Henrik Magnusson, Lars Borgquist