Author's response to reviews

Title: High prevalence of diagnosis of diabetes, depression, anxiety, hypertension, asthma and COPD in the total population of Stockholm, Sweden - a challenge for public health

Authors:

Axel C Carlsson (axelcefat@hotmail.com)
Per E Wändell (per.wandell@ki.se)
Urban Ösby (urban.osby@ki.se)
Ramin Zarrinkoub (ramin.zarrinkoub@priv.sll.se)
Björn Wettermark (bjorn.wettermark@ki.se)
Gunnar Ljunggren (gunnar.ljunggren@ki.se)

Version: 3 Date: 18 April 2013

Author's response to reviews:

Reviewer #1

Reviewer's report
Title:
High prevalence of diabetes, depression, anxiety, hypertension, asthma and COPD in the total population of Stockholm, Sweden - a challenge for public health
Version: 2
Date: 5 March 2013
Reviewer: John JC Carstensen
Reviewer's report: This is a good paper and I have only two comments of 'minor essential revisions'type.

The first concerns the authors suggestion (p 13-14) of a possible survival bias leading to an underestimation of (for example) the COPD prevalence. This should not be a problem if one interpret their results as point prevalences (31 dec 2011) which I think is more reasonable with this design.

Author response: We agree with the Reviewer regarding COPD and added the following sentence, page 14:

“However, this is not a problem if the data are interpreted as point prevalence’s”

The second is related to the discussion about the effect of health care system. There is an interesting and important paper about the effect of reimbursement
system on diagnosis registration from the same group that published ref. 37.
(Hjerpe et al. Increased registration of hypertension and cancer diagnoses after
the introduction of a new reimbursement system. Scand J Prim Health Care
2012; 30(4):222-8.). I think this should also be mentioned as a potential
methodological problem.

Author response: We agree with the Reviewer that this possibly could have had
an effect but only marginal changes were made in Stockholm County during the
studied time period. We added the following:

Additionally, the reporting of diagnoses may change along with changes in the
healthcare reimbursement system, however, no major changes occurred in the
region during the course of this study.

Level of interest: An article of importance in its field
Quality of written English: Acceptable
Statistical review: Yes, and I have assessed the statistics in my report.
Declaration of competing interests: I declare that I have no competing interests

Reviewer #2
Reviewer's report
Title: High prevalence of diabetes, depression, anxiety, hypertension, asthma
and COPD in the total population of Stockholm, Sweden - a challenge for public
health
Version: 2
Date: 25 March 2013
Reviewer: Alessandra Marengoni

Reviewer's report: The authors evaluated prevalence of major chronic diseases
in the population of Stockholm. The paper is well written and addresses a very
important issue in public health which is the epidemiology of non-communicable
diseases.

I have minor revisions:

1) The abstract should report some major age groups differences in prevalence
of diseases.

Author response: Excellent suggestion. We added the following to the results
section of the abstract:

“Diabetes, hypertension and COPD increased markedly with age, whereas
anxiety, depression and asthma were fairly constant in individuals above 18
years.”
2) The authors chose to exclude people who died; I suggest to report, maybe in supplementary materials, data on prevalence of diseases including people who died during the observational period and affected by diseases such as diabetes or COPD highly correlated with mortality.

Author response: We agree with the Reviewer that mortality is likely to influence and underestimate our data. However, as suggested by Reviewer #1, if interpreted as point prevalence’s, this is not a problem.

3) Please give a brief description of the population at the beginning of the results section.

Author response: We agree that this is of interest and added the following section to the beginning of the results:

The demography of Stockholm County
The population of Stockholm county was younger than in the rest of the country, with only 14.2% of the population being 65 years of age and older, and as many as 38.9% in the age group 18-44 years (table 1).

4) Page 10 discussion: I’d state that the problem for complications are people affected by diabetes and hypertension in younger age groups

Author response: Excellent suggestion. The complications in diabetes are as the Reviewer states of greater importance in young diabetes patients. However the risk of stroke is especially high in old individuals with hypertension. Based on these facts, we rephrased the discussion in the following way:

With more than 30% of men and 20% of women aged between 75-84 years being diagnosed with diabetes during a five-year period, considerable amounts of health care resources will be needed. In addition, with 55% of all men and women in this age-group being diagnosed with hypertension, a considerable burden could be expected as this group would likely develop cardiovascular complications. The large amounts of younger patients diagnosed with these conditions, subsequently developing complications may also pose a challenge for the future.

5) Supplementary figures; please leave only one example

Author response: We recently presented the Wenn diagrams to health care professionals in Stockholm and there is a great interest for this kind of data. This study was funded by the Stockholm County Council and they are interested in ways to estimate where to allocate resources. Thus, we would prefer to keep the diagrams as the paper will be cited based on this data.

Level of interest:
An article of importance in its field
The paper describes the prevalence of diagnoses of common diseases in the medical records of the population of Stockholm Country as obtained from a unified database over a five year period. The authors describe the percentage of diagnosis allocation by age and medical care setting (primary care, secondary care, hospital admission).

Major compulsory reviews

1. Throughout the paper the authors use the concepts of prevalence of disease in the general population and prevalence of diagnosis in the healthcare database as interchangeable. From my point of view this is misleading as some population groups can delay their access to healthcare or suffer a delay of the diagnosis. It is possible that every single inhabitant of the area of interest has been included in the administrative database, and if it is the situation the results can strongly suggest the actual prevalence of disease. The authors should address if universal healthcare has been achieved in the area of interest and if there is any possibility of specific population groups not covered or not attending medical care even if covered.

Author response: We agree that there is an important distinction to be made between the prevalence in the population of certain diseases, and the prevalence of diagnosed disease that has to be made. We have changed the wording...
throughout the revised manuscript in order to make certain that this distinction is clear.

Only illegal immigrants are not covered in the reimbursed healthcare system. This is mentioned in the revised manuscripts methods section.

“Besides illegal immigrants, the general health insurance covers all residents.”

2. Also, factors related to the patient and the way doctors establish a diagnosis can make the prevalence of diagnosis not an exact proxy of prevalence of disease. The authors hint at this topic in the discussion of asthma and diabetes, this topic should be addressed also in the discussion of the other prevalent diseases. If there is any data on the Sweden population on prevalence of common disease from population-based studies it should be discussed and compared for all diseases. A discussion on the differences and similarities of the diagnostic criteria employed in the administrative database and the diagnostic criteria for population-based should be included. A phrase in the beginning of the discussion also points in this direction, but the topic should be addressed also in the introduction.

Author response: The present study shows diagnoses registered in electronic patient records. These are reported by doctors and should thus be according to relevant diagnostic criteria including lab analysis and physiological tests such as spirometry. We discuss the distinction between the prevalence in the population and the prevalence for diagnosed diseases with regard to diabetes, anxiety and hypertension in the following way in the revised version of the manuscript.

“A recent Swedish study, where a population based sample of 75-year-old persons was interviewed over a period of one month, reported that 3.7% had generalized anxiety disorder according to ICD-10 [17], which is consistent with the five-year prevalence of 4.2% among persons aged between 65-74 years of the total population of Stockholm County reported in this study. Another Swedish study reported that as much as 24% of the Swedish population aged 20-64 years fulfilled the criteria for anxiety and/or depression [18].”

“A population-based study has shown that two thirds of the 60-year old diabetes patients are known [15].“

“Studies of hypertension in the US have shown that the prevalence of hypertension in the adult population (18 years of age and over) was nearly 30% [25, 26], which was higher than that we reported in this study (12.2%) implying there may be a large number of undiagnosed individuals in total population of Stockholm County. This is in agreement with a screening study of 60 year-old persons from Stockholm which showed that newly diagnosed hypertension was more prevalent than already diagnosed hypertension [13].”
3. The interpretation on the COPD prevalence should address if the smoking prevalence is also comparable between the population of the study and the administrative database.

Author response: We do not completely understand what the Reviewer mean. The database covers all residents in Stockholm (besides illegal immigrants). The frequency of smoking has in population based surveys in Sweden been estimated to be around 15% but we don´t have any data on smoking in these administrative databases to do an exact comparison.

4. A discussion on data quality from administrative databases for diagnosis in this specific setting should be included. I.e: were all diabetes diagnosis stablished with standardized blood testing? Were spirometries performed in all asthma and COPD testing?

Author response: Please see answers above. The present study shows diagnoses registered in electronic patient records. These are reported by doctors and should thus be according to relevant diagnostic criteria including lab analysis and physiological tests such as spirometry. In addition, we have added a section in the introduction of the revised manuscript which reads:

“Prevalence can be assessed in several ways [1]. First, by self-reported presence of diseases, which may contain several uncertainties and result in different validity depending on the studied diagnosis. Second, by using or combining healthcare source data based on diagnosis records or on drug prescriptions but where individuals without prescribed drugs will be lost. Third, by the use of two or more data sources which could be combined by capture–recapture methods. Fourth, by population-based screenings which will identify new cases but will have lower validity in studies with low participation rates.”

5. What is the authors interpretation of the high percentage of patients diagnosed only in SOC for diabetes and asthma? (20% for diabetes, 28% for asthma)

Author response: The primary care in the three largest cities in Sweden, Stockholm, Gothenburg and Malmö is not as developed as in the rest of Sweden and in other countries with comparable health care systems. Thus, a larger proportion receive their care from specialists other than GPs. We mention this in the following way in the discussion of the revised manuscript.

“Health care systems vary widely across different regions and countries. More patients in Stockholm receive their care from specialists other than GPs, due to an proportionally smaller primary care sector compared with the UK [38].”

Minor essential revisions
Title:
I believe “High prevalence of diagnosis of diabetes, depression, anxiety...” is a more accurate description

Author response: We thank the Reviewer for making this distinction. We changed the title accordingly.

Abstract:

Background
This section should specify that the prevalence is of diagnosis in the population of the Swedish capital region.

Author response: We rephrased the aim in the following way:

"The aim of this study was to analyze the prevalence of diagnosis of six common diseases in the Swedish capital region."

Introduction
“database” is a better term that “warehouse”

Author response: We thank the Reviewer for this suggestion. We changed this wording accordingly.

Methods and study population
Legally “forced”. In the same phrase the “are “ after public providers can be omitted.

Author response: We thank the Reviewer for the careful reading of our manuscript. We deleted this “are” accordingly.

Ethics
“blinded or anonymized” is a better word than “de identified”

Author response: We use anonymized in the revised manuscript.

Results
“The” before prevalence can be dropped in all titles and “were diagnosed” used instead of “had the diagnosis”

Author response: We thank the Reviewer for these language corrections which we applied throughout the results section.

Level of interest: An article of importance in its field

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

Statistical review: Yes, and I have assessed the statistics in my report.
Declaration of competing interests: I declare that I have no competing interests