Author's response to reviews

Title: Reliance on social security benefits by Swedish patients with ill-health attributed to dental fillings: a register-based cohort study

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Author's response to reviews: see over
Dear Editor

Thank you for giving us the opportunity to submit a revised version of our manuscript “Reliance on social security benefits by Swedish patients with ill-health attributed to dental fillings: a register-based cohort study” for possible publication in BMC Public Health.

We thank the reviewers for the constructive comments and have revised the manuscript in accordance with their comments. We enclose point-by-point responses to the issues raised by the reviewers.

Yours faithfully
Aron Naimi-Akbar, D.D.S.
On behalf of the authors
Reviewer's report
Title: Reliance on social security benefits by Swedish patients with ill-health attributed to dental fillings: a register-based cohort study

Version: 1 Date: 21 May 2012

Reviewer: Karin Festin

Reviewer's report:

This is a paper on an important subject and I read with great interest. It has some areas that have to be clarified and there are some smaller things that can be changed in order to improve the paper (see below). The question posed is well defined and data are sound. Results etc are adequately reported and discussed. Title and abstract are ok. The language is a little plain, otherwise ok.

Major Compulsory Revisions

1. General. My major concern regarding this paper is about the statistical way the authors' deals with data on social security benefits (and income). These type of data (data on sick leave and disability pension) are to my experience very seldom normally distributed, why calculating mean number of days with these type of benefits might be doubtful. The same yields for income, which often has a skew distribution in a population. The way data is presented (regression coefficients and graphically) it is not possible for the reader to assess if this is a problem or not. A test whether data is normally distributed should be included, and if turns out that this is not the case, non-parametric statistical methods should be used instead. If data turns out to be appr. normally distributed the statistical methods used in the manuscript is relevant. Distribution of data and choice of statistical methods is not addressed at all in the manuscript.

- Thank you, you are correct in that the data is not normally distributed. In accordance with the comment, we have removed the statistical tests of social security benefits and income with linear regression and added new analyses using generalized estimating equations. This is a more appropriate way of modelling as it does not assume normal distribution and also accounts for the within-subject correlation in the longitudinal study design.

Minor Essential Revisions

2. Background. The background is short, but relevant. However, I would like to have some more information on this group of people – e.g. what kind of ill health do they report, what type of symptoms do they show and how does it affect their work capacity? It would also be valuable with a little information about the procedure of filling replacement.

- In several studies these patients have reported a wide variety of symptoms. In the revised manuscript we have added information about some of the most common symptoms among these patients.
“However, some individuals attribute their ill health to dental filling materials; they experience a variety of symptoms and common examples are fatigue, sleep disturbance, and joint and muscle pain [4-6]. It is not known whether these individuals continue to financially support themselves by work or become reliant on different types of social security benefits.”

We do not have detailed information about filling replacement as it has been performed by the applicant’s dentist in general practice. We have added some general information about dental filling replacement in the methods section.

“The procedure of filling replacement is performed as a common dental procedure, conducted by a dentist. The fillings are replaced by a dental materials considered as less perilous by the patient, e.g. plastic composite materials.”

3. Methods. Very little information about sick leave and disability pension data is provided in the manuscript. The Swedish social insurance system (with the employer paying for the first period in the sick leave period) could be better described (including level of compensation), so that the reader knows which type of sick leave data is included. Also level of compensation could be valuable information.

- We have added more information about this to the methods section.

“All people living in Sweden are covered by the national social insurance scheme. All adult residents with income from work or unemployment benefits can get sickness benefits covering up to 80% of lost income when unable to work due to disease or injury. The first sick-leave day is a qualifying day with no benefits. After the 7th sick-leave day, a sickness certificate issued by a physician is required. The employer provides sick pay for the first 14 days of a sick-leave spell and thereafter, i.e. from day 15, the sickness benefits are provided by the Social Insurance Agency. In this study we have data of the latter, and not of the shorter sick-leave spells paid by the employer. Individuals with a medically confirmed disease or injury that permanently restricts their work capacity can be granted a disability pension, covering at least 65% of lost income. The general old-age retirement age is 65 years but can be taken earlier.”

4. Methods. Seven out of 21 counties were included in the study. Please explain why and how those were selected.

- All Swedish counties were asked to provide patient information for the study. Seven out of 21 counties agreed and contributed with the required information to the study. This is now better described in the methods section.

“All Swedish 21 Swedish counties were asked to provide patient information for the study. Seven counties, representing about 39% of the Swedish population agreed to contribute and provided the information.”

**Discretionary Revisions**

5. General. Sometimes I got confused when reading about ‘the comparison
group’. Maybe this group should be referred to as the general population instead.

- We now refer to the comparison group as the general population cohort.

6. Results. Second paragraph. Second sentence. Please write which type of data were available.

We have now added that data was obtained from the Longitudinal integration database for health insurance and labour market studies” (LISA).

7. Discussion. Strengths of the study are discussed, while no possible limitations/weaknesses are mentioned, not regarding data, methods used or in the conclusions drawn.

We have included the limitations of the present study regarding the classification of these patients as they are a heterogeneous group.

“Classification of patients with health problems related to dental restorative materials is always problematic as this is a very heterogeneous group, with a variety of health problems. This study population included all applicants for subsidised dental filling replacement in almost half of Sweden. This particular means of sampling reduces the risk of misclassification.”

We have also added some more information about potential limitations in this study.

“Limitations include that we have no information about whether filling replacement actually was done, e.g. in the rejection group. However, there were probably several individuals in the rejected group who paid themselves for having their fillings replaced.”

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.
Reviewer's report

Title: Reliance on social security benefits by Swedish patients with ill-health attributed to dental fillings: a register-based cohort study

Version: 1 Date: 24 April 2012

Reviewer: Leonard Crocombe

Reviewer's report:

This is a novel article looking at the association between social security benefits, ill-health and amalgam dental fillings. The rapid shift from sick leave to disability pension following filling replacement is an important finding.

I have a few suggestions which I hope will improve the paper:

Major Compulsory Revisions

1. My understanding of the methods is that the cohorts were selected over a 6-year period (1999-2005) and what type social security benefits they had over the same 6-year period had was analysed. If so, this is really a cross-sectional study which means that cause and effect cannot be found. If that is correct, then the statement in the conclusions that "patients with health problems related to dental materials are likely to become dependent on social security benefits" cannot be sustained. It could be that the other way around, i.e. people dependent on social security benefits are likely to have health problems related to dental materials.

   - All patients that applied for dental filling replacement between 1999 and 2005 were included in the replacement cohort. Thereafter data registered each year 1994 - 2006 in the Longitudinal integration database for health insurance and labour market studies (LISA) was obtained for all subjects. We have followed all subjects prospectively by collected register data over thirteen years.

   We agree that we cannot distinguish causal effects in this study, for that another study design would be needed, preferably a randomised controlled trial. We have found an association that might be due to other common causes for both dependence on social security benefits and ill-health attributed to dental fillings. We have changed our statement to convey a more modulated conclusion.

   “Ill-health related to dental materials is likely to be associated with dependence on social security benefits.”

2. If my understanding of the methods is incorrect (and I note that in the first paragraph of the Discussion Section 13 years is mentioned), and this is a longitudinal survey, i.e. the social security status of the participants was only after the request for restoration replacement, then it was not made clear to me in the Methods and it needs to be better described.
We agree that the study design was not described as clear as it should have been in the manuscript. We have clarified the design in the first paragraph of the methods section.

“A cohort of patients under the age of 65 suffering from ill health which they attributed to their dental filling materials was followed with regard to their use of social security benefits between 1994 and 2006. This cohort was compared with a cohort of matched individuals representing the general population followed over the same years.”

**Minor Essential Revisions**

3. **The research relates only to amalgam fillings, but that is not clear in the title.**

There are possibilities for patients to apply for subsidised replacement of other filling materials as well. Although most research and public concerns deal with dental amalgam fillings, some patients might have applied for replacement of other fillings. We do not have information about what type of dental fillings they applied to replace.

4. **There was a high proportion of females in the cohorts. It would be nice for the authors to discuss why this may be so.**

   The figures 1, 2 and 3 are labelled A and B. It would be better if they were better described in the labels

   We have added a few sentences discussing this.

   “Our study included more women than men as is the case in other studies concerning patients with general health problems related to dental materials [4, 5, 8, 10]. This coincides with reports of higher prevalence of chronic pain conditions among women [17]. Several different potential causes have been suggested such as the impact of domestic responsibilities and job strain among women and a higher degree of catastrophizing among women [18, 19].”

   We have replaced the old figures and have added new figures together with improved descriptions.

5. **It isn't clear to me why the comparison was made of those between successful and unsuccessful applicants for subsidised replacement of dental fillings was done, i.e. what extra information would be obtained that would not be obtained from the. The reason for this using this comparison could be better described.**

   This is now addressed more in the discussion section.

   “The study also compared outcomes for applicants who received approval for subsidised replacement of dental filling materials and those whose applications were rejected. Presuming that the approved group would have had their dental fillings replaced, in contrast to the rejected group, we aimed to study if there were any differences between the groups in terms of reliance on different forms of social security benefits the time after the application.”
“Limitations include that we have no information about whether filling replacement actually was done, e.g. in the rejection group. However, there were probably several individuals in the rejected group who paid themselves for having their fillings replaced.”

**Discretionary Revisions**

6. **It was not clear on what basis the application for subsidised replacement of fillings could be rejected (fully or partly).** A better explanation of this process would help explain why a comparison of between successful and unsuccessful applicants for subsidised replacement of dental fillings was done.

We have added some more information to the introduction about the criteria stated in the Swedish code of statutes.

“Since 1999, the Swedish National Dental Health Insurance Scheme has included subsidised replacement of dental fillings to relieve symptoms allegedly due to adverse effects of dental filling materials [7]. The eligibility criteria, according to the Act and the Ordinance on State Dental Care, require a thorough medical investigation and inclusion of dental filling replacement in an overall treatment plan, under the guidance of a physician with specialist training in a field relating to the patient’s symptoms [7].”

**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:** I declare that I have no competing interests.