Reviewer's report

Title: Prevalence estimates of multimorbidity varied with study population and the number of candidate diseases considered: a comparative study

Version: 1 Date: 10 February 2010

Reviewer: Helena Britt

Reviewer's report:

Discretionary revisions

1. Abstract
   The objective is not clear – the two studies different in more ways than the 'study populations". They also use different methods to collect the data. I suggest the last 2 lines of Background should read: ‘….from two sources and to examine the impact of the number of diagnoses considered in measurement of multimorbidity’.

2. Title: The title is somewhat verbose – could it be shortened without losing meaning?

3. Background:
   3.1 Line 6. The studies have diverse data collection methods too and this also affects results. Broaden the statement.

   3.2 Last line page 1: ‘careful consideration’ will not fix the lack of uniformity. I suggest you replace this : ‘ used should be uniform’.

   3.3 Page 4 lines 2 and 3: this almost reads like a non sequitur. Needs re thinking.

   3.4 Last two lines of Background: this is an awkward sentence. Do you mean “…derived from general and family practice-based populations and to examine the impact on prevalence estimates within the practice based population, of variation in the number and range of different diagnoses considered.”?

4. Discussion
   4.1 See comments in methods.

   4.2 Page 8: last paragraph. This section makes me wonder if the problems chosen in you study from the records were limited to ‘active’ or ‘ever’ managed? Also ICPC diagnostic groups are called ‘rubrics’ rather than diagnostic groups.

   4.3 First paragraph makes the point that Netherlands study included all patients from the register. This could be made more clear if you put in brackets (including low attenders) at the end of the second last sentence in this para.

   It would also make it clearer if you extended the sentence before (line 10 of the para) by pointing out that those with complex needs come more often and
therefore have a higher chance of selection in the sample. You and I know that…. But have others thought about it?

4.4 The suggestion that there should be a standard list of chronic conditions is good. However, there is. See O’Halloran J, Miller GC, Britt H. Defining chronic conditions for primary care with ICPC-2. Fam Pract 2004 Aug;21(4):381-386. Admittedly this is according to ICPC and since the data in your study are not classified it would not be perfect. However, perhaps you should be aware of it and discuss this paper?

4.5 Page 10 para 2: Your higher prevalence in men of younger age-groups is logical considering the recruitment process (consecutive) + the fact that younger men are know to attend far less often than younger women, so they have an even higher chance when recruited in this way, of having chronic problems. Note that ref 7 measured multimorbidity as 2+ CIRS groups, rather than individual diseases – more implications!

4.6 Patient self report Page 12. There is a myriad of literature showing patient knowledge as well as recall are poor regarding their own health. And more that study differences between patient self report and medical record audit – not just for multimorbidity, but for specific morbidity While you talk about it, the ‘knowledge versus recall issue is not raised and there is a lack of reference to the latter set of studies.

4.7 Overall, The discussion somewhat rambles and goes far beyond the implications of the results. It needs tightening up and could do with some resorting into a more logical argument, with the limitations put together in one section.

Minor essential revisions

5 Methods

5.1 Was the self report open or a set list to which an answer was required for each? I cannot access the referenced article. It is important because open ended question will result in less recall than a set list with yes/no response to each. This has implications for your discussion.

5.2 I note from ref 13 that you did not adjust for the cluster design in your study. It is of no consequence how small the intracorrelation is, it should be done automatically. It will not affect the point estimates in the current work it will just broaden the CIs.

In this paper it would in fact make no difference to the overall results because the differences are so large. However, if adjustment is not to be done in this paper you need to repeat the statement about the lack of adjustment for the cluster.

5.3. Was the decision as to what should be classed as chronic disease (in any medical record) left entirely to the staff? What happened when a patient record had both a diagnosis of ‘hypertension’ (which would presumably be uncomplicated), and later in the record a diagnosis of hypertension with kidney
involvement—“complicated hypertension”, Would this be classed as one diagnosis with progression, or as two? This ties in with the lack of a clear definition of inclusions for chronic disease. Please make clear in the method. These issues also need to be considered and brought up as in the discussion.

6. Results: In general clear.

6.1 Line 7-8: This sentence is wrong I think. It seems it should read: ‘In the general population the prevalence of => 3 diseases was 3.4%... among men and 4.5%.... among women (otherwise we have >90% of your population with no gender!).

**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