Reviewer’s report

Title: The agreement between chronic diseases reported by patients and derived from administrative data in patients undergoing joint arthroplasty

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Reviewer: Johannes Maria Giesinger

Reviewer's report:

The manuscript presents an analysis of a very large data set comparing patient-reported comorbidities with those available from health records. This is an important topic as patient-report is frequently used to assess comorbidity in the literature. Both assessment methods come with specific sources or bias and error that affect reliability of the measurement and therefore consistency of results obtained from patient-report and health records. A key point, that is also stated by the authors, is the lack of a gold-standard in this analysis. For this reason the accuracy of the patient-report cannot be assessed, but only the consistency with health records (accuracy would require comparison against the "true" comorbidity status).

While the authors mention the lack of a gold-standard the way the data is analysed suggests differently. By calculating sensitivity and specificity of patient ratings using health records as a criterion, it is implicitly assumed that health records provide the "true" comorbidity status, since in most of the literature sensitivity and specificity are related to a gold-standard measurement. Cohen's Kappa may be the more appropriate statistic here as it does not imply which of the two measurements is more accurate.

In addition, the authors should point out in the discussion that sensitivity and specificity depend on prevalence which limits the comparison of these parameters across different types of comorbidities with varying prevalences. Again, Cohen's Kappa is more suitable for this purpose (please see for example Vach 2005: https://www.ncbi.nlm.nih.gov/pubmed/15939215). It may therefore be more meaningful to provide a Kappa values in Figure 2. In table 3, please give confidence intervals for the Kappa values in Table 3.

The discussion would benefit from discussing the various sources of error or bias that affect patient-report and/or health records. This may help to better interpret the findings.

The conclusion states "The study indicates that patients can give accurate information..". It is appropriate to state that the information given by patients is mostly consistent with health records. Accuracy determined by comparing against health records again implies that health records are a gold-standard.
Are the methods appropriate and well described?
If not, please specify what is required in your comments to the authors.

Yes

Does the work include the necessary controls?
If not, please specify which controls are required in your comments to the authors.

Yes

Are the conclusions drawn adequately supported by the data shown?
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No

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I am able to assess the statistics

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