Reviewer's report

Title: Productivity at work and quality of life in patients with rheumatoid arthritis.

Version: 2
Date: 2 February 2015

Reviewer: Janne Martikainen

Reviewer's report:

The manuscript is clearly and well written, which makes the manuscript easy to follow. However, I have some things that need to be taken into account before considering the manuscript for publication.

- Major Compulsory Revisions

(1) My major concern relates to the statistical distribution of a dependent variable (i.e., presenteeism) applied in the OLS modelling. The authors have not reported the descriptive statistics or graphically presented the distribution of presenteeism data, which makes impossible to evaluate how assumptions related to OLS modelling are fulfilled. If the distribution of presenteeism data is highly (positively) skewed (i.e., there are only few patients reporting the high level of presenteeism), then the assumption related to the normality of the dependent variable does not hold. In that case, alternative model structures should be considered. For example, GLM models with gamma distribution and linear link function could be applied to take into account the skewed distribution of the dependent variable without losing the easy interpretation of the results. The selection of model specification could be supported by the use of information criteria, such as AIC and BIC. Furthermore, if the presenteeism data includes zeros (i.e., no reported presenteeism), then two-part/hurdle models should be considered. However, in the present study, this is probably not the case, since one of the inclusion criteria was “…and experiencing at least minor difficulties in functioning at work”. However, the range of observed presenteeism needs to be reported to ensure this.

- Minor Essential Revisions

(2) Tables 1-3: Definition of column “Mean (sd)/n(%)” might be a bit unclear for readers. Please consider revise it.

- Discretionary Revisions

(3) Page 5, Lines 22-23: “…and experiencing at least minor difficulties in functioning at work”. How this was measured in practice? What was the threshold value for “minor difficulty”?

(4) The above inclusion criterion excludes possibility to study the associations between internal/external factors and the incidence of presenteeism. Would it have also been interesting to study associations between the probability of
presenteeism and e.g. the level of disease activity?

(5) Page 7, Lines 32-33: How reliable is the measurement of absenteeism due to a long recall period? Is there a risk of recall bias?

(6) Page 8, line 14: How this threshold value was selected? Please add reference.

(7) Page 8, lines 31-33: What is the rationale for cross-validation? Is it just to obtain “cross-validated R2” for a final model or are you aiming to build an accurate prediction model for presenteeism? In a later case, I suggest you to use e.g. root-mean-square error (RMSE) in the estimation of a prediction error. The RMSE is a frequently used measure of the differences between predicted values and observed values in the comparison of statistical models.

(8) Page 9, lines 13-14: Why more than 10% change was considered relevant? Please add reference.

**Level of interest:** An article whose findings are important to those with closely related research interests

**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 direct financial or non-financial competing interests. However, I am the senior partner of ESiOR Ltd, which provides health economic and outcomes research (HEOR) services for pharmaceutical companies and hospitals.