Reviewer's report

Title: Identification of candidate categories of the International Classification of Functioning Disability and Health (ICF) for a Generic ICF Core Set based on regression modelling

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Reviewer: Michael F Schuntermann

Reviewer's report:

General

Functioning and disability in terms of the ICF are highly complex constructs. In order to meet the unique situation of an individual, the interaction between his/her health problem and his/her contextual factors (environmental, personal factors) with respect to his/her body functions, body structures, activities and participation is to be inspected when assessing his/her functional status. For this reason the full version of the ICF should be used in principle. It is well known, however, that some short forms of the ICF are needed for a variety of purposes in everyday practice. Thus, WHO published a short version of the ICF, the ICF checklist, and a suggestion for ICF data sets for ideal and minimal health information systems or surveys (ICF, Annex 9) as generic tools. Moreover, some specific tools are under development such as the EUMASS ICF checklist for social security, and the disease specific ICF checklists.

With respect to developing a generic tool, Cieza et al. offer a new and interesting approach. Generally and formally speaking, they ask the following question: Is there a convenient and practicable set of ICF categories which (statistically) explains a health construct sufficiently? As a health construct the authors use the first item of SF-36 (SF-36(1)): “In general, would you say that your health is excellent / very good / good / fair / poor?”. It should be noted that the construct indicated by this single item is in particular a subjective one: no substantial personal factors, however, were included in the study. For this reason the authors rightly ask in their discussion of the results whether SF-36(1) is the appropriate standard.

The authors identified sets of ICF categories by stepwise linear regression models (using R-square as goodness of fit criterion) which were controlled by some demographic variables such as age and sex, and by some aspects of co-morbidity (SCQ) after having carried out both (1) an ICF categories selection procedure based on descriptive statistics of the sample and the results of correlation analyses, and (2) an initial regression analysis. The respective data were collected in a large multi-centre survey(19 German rehabilitation centers, 1039 patients). The ICF based data were collected using the WHO ICF checklist.

The results are fairly disappointing when viewing R-square being about 0.23, and they cannot be generalised. For that the authors give numerous reasons which seem to be plausible. But there are additional ones. (1) Linear regression methods may be too restrictive. To get an idea of the appropriateness of these models a residual analysis would be helpful. (2) In the ICF the first qualifier (degree of severity of a problem) which the authors apply is not operationalised. Though there is an operationalisation given in the WHO ICF checklist, it is not applicable because it is not complete. Thus, the authors must have had their own operationalisation which is not described. They mention that the raters were trained in a one-day workshop. Such a procedure may be not sufficient. It may be that this causes problems regarding the validity and inter-rater reliability of both assigning ICF items and scoring the first qualifier.
To sum up: The value of the study is not justified primarily by the results but by asking a new and fruitful question which opens the door to further research.

Major Compulsory Revisions (that the author must respond to before a decision on publication can be reached)

To get an idea of the appropriateness of the applied regression models, a residual analysis should be made and included in the paper.

The authors should give some short comments on their operationalisation of the first qualifier.

Minor Essential Revisions (such as missing labels on figures, or the wrong use of a term, which the author can be trusted to correct)

Page 14:
“Individuals with fewer diseases are healthier” to be corrected to “Individuals with fewer diseases feel healthier”.
“... threshold of > 0.01” to be corrected to “... threshold of < 0.01”.

Discretionary Revisions (which the author can choose to ignore)
none

What next?: Unable to decide on acceptance or rejection until the authors have responded to the major compulsory revisions

Level of interest: An article of importance in its field

Quality of written English: Acceptable

Statistical review: No

Declaration of competing interests:
I declare that I have no competing interests