Reviewer’s report

Title: Developing a comprehensive definition of sustainability

Version: 0  Date: 28 Apr 2017

Reviewer: Jochen Gensichen

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General comments:

This study presents a comprehensive definition of 'sustainability' based on the literature identified across four systematic reviews. The authors abstracted 24 sustainability definitions from 209 original publications (11.5%). Constructs from each definition were abstracted and mapped to an existing definition, as well as new constructs were noted. Based on the mapped and new constructs, a comprehensive definition of the term sustainability was created that included five constructs finally.

The study focuses a relevant topic in health care research. The authors review a complex and theoretically based problem. The description of the systematic literature search may need a clarification to avoid a sense of selection bias.

I would recommend: 'revision'.

I have some concerns:

1. The introduction section presents the relevance of the important research topic very well and detailed. The authors may want to shorten the section, as they repeat multiple times some statements. i.e. on missing of a clear and established definition of 'sustainability'.

2. Since the study analyses a very theoretical topic of 'sustainability', the authors may want to provide stronger and more specific selection criteria for their systematic review. The submission of a study protocol would have been helpful for the analysts (and the reader) before the literature search was performed. It seems a bit unclear how the authors have combined the literature search terms in detail (advanced search builders 'AND/ OR'; literature search via title screening/ abstract screening/ full text screening, MeSH-Terms...). The authors may want to provide their complete search strategy in the appendix of the article. Specific criteria for including / excluding original studies, as well as the analysed publication period and the used language are important, too. It remains unclear; why the analysts searched in a single data base only (PubMed). Further databases or resources might be important, too (Embase, Cochrane, 'grey literature', study registers, etc.).

3. In the introduction the authors stated, the high number of synonyms of the term: 'sustainability'. But they describe data abstraction and analysis as: 'In phase 1, we identified all
articles that provided any definition of sustainability or a synonym of sustainability.' It would be helpful when the authors would present the definitions of all the identified synonyms. The method for data extraction and analysis maybe biased when the authors play it like this: 'sustainability definitions were compared and discussed to resolve any discrepancies'. The authors may want to provide a systematic process to handle discrepancies to their prospective protocol.

4. The authors may want to provide further information on, how they 'subjected the list of definitions to calibration activity, similar to the familiarization phase in qualitative coding.' Did they designed a new process or did they refer to other research?

5. In phase 3 the authors do not provide information on criteria on how they include or exclude research on 'constructs' or on how to distinguish 'constructs' from 'factors or determinants that affect sustainability'. In addition, the three analysts reviewed the lists of mapped definitions 'collectively' and not independently. It seems that the study selection and the data extraction are not easy to reproduce.

6. The last part of the methods section seems a bit confusing, as there are some revisions and re-mappings of the constructs of the phase 2 and 3. It may be helpful to illustrate the workflow of revisions and re-mappings.

7. The results section also reflects the selection bias: 'Inclusion criteria varied across the four reviews.' As there was no study protocol either a clear defined study question (PICOS ?) effects of subjectivity in the literature research and data extraction may have biased the results. Therefore, the comparability of the included reviews seems a bit unclear and some studies might not be part of the analyses.

8. In the discussion section the authors may want to avoid an extensive repetition of the results. The authors may extend the discussion on reflecting their aggregated findings with regard to included reviews and to other current research.

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