Reviewer's report

Title: Outcome choice and definition in systematic reviews leads to few eligible studies included in meta-analyses: A case study

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Reviewer: Paul Kind

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Although this paper deals with a highly specific functional system it speaks to a topic that is (or should be) of concern to a wide ranging readership. The gradual evolution of evidence-based "everything" has created attendant risks, some of which for the older cynic (this reviewer) can be seen in the landscape painted by this well-crafted manuscript. The quality of primary research is critically influenced by the selection of outcome measures. Here researchers are trapped between the need for comparability with other (competing) work and backwards compatibility with legacy research. Despite the demonstrably weak design of, say, the Karnofsky Index it is still widely reported more than 7 decades after its initial publication. Generic HrQoL measures such as QWB and NHP are equally persistent. Newer measures such as EQ-5D (now 30 years old) face technical challenges as measurement tools as they transition from one version to another (3-level to 5-level). By the time primary research is reported, the lag may seriously impact on its meaningful inclusion in any review. Despite these caveats end-users (notably health economists) insist that *any* evidence is better than none.

I feel that the discussion pulled a few punches in exploring the implications for "decision-makers" who rely of the "truth" revealed to them by systematic review technocrats. Yes, there needs to be a much better approach to and coordination of measures incorporated in primary research to quantify health outcomes. There are some therapeutic areas/conditions in which core data sets include one or more standard measures - MSK for example. But regulators and "decision-makers" across different health jurisdictions cannot complain about any failure of the systematic review "intel" if they are not prepared to help standardise their information requirements - and help broker a census. Research funding agencies too ?

I have a few (pedantic) comments - "truly" evidence-based healthcare [p5]. Truth in this context is a highly inflammable construct which I think sits better within the Discussion and could be amplified in that context

Lines 35 - 43 [p6] relate specifically to this study -the points are well made but could perhaps be generalised/expanded for the benefit of readers unfamiliar with vision. In particular, it could be useful to provide some text on the central construct of "outcome". There is a tendency to assume that outcomes data are automatically generated by "outcome" measures. This largely stems from the labelling of instruments and the misnomer of so-called Patient-reported outcomes (PRO). The key feature of outcome measurement is its derived status that is dependent upon repeated observation using standarised metrics - hence the need for a wider debate across primary research stakeholders.
As concluded in Clarke (ref 11) - all this will "require consensus, guidelines and adherence". So more than a decade on - how do things stand now?

**Are the methods appropriate and well described?**  
If not, please specify what is required in your comments to the authors.

Yes

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