Reviewer's report

Title: Development of a theory- and evidence-based intervention to enhance implementation of physical therapy guidelines for the management of low back pain

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Reviewer: Philippe Mairiaux

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In their contribution the authors are describing, step by step, the development process of program intended to enhance the adherence of physiotherapists to good practices guidelines for a better management of low back pain patients. It is of great interest to see how they applied the Intervention Mapping framework to develop their intervention program: combination of qualitative (focus groups) and quantitative (survey) methods with literature reviews in order to identify the factors associated with non-adherence to guidelines, definition by the research team of matrices of change objectives, selection of theory-based behavior change methods matching the change objectives, and eventually design of the application program comprising 6 workshops with the target population of PTs and "quality managers". The development process did include also an evaluation plan with a one-group pre-test/post-test study. This last component results have been recently published in BMC Health Services Research (ref 17 in the paper).

The whole development process is impressive by its structure and rigor. Unfortunately, the authors seem to have met serious difficulties to match their description, whatever its potential interest, with the usual format of a scientific paper.

There are several indices of these difficulties in the manuscript. The study aim is not clearly defined: in the abstract the aim “is to demonstrate this process” (?) while in the introduction the aim “was to undertake formative research and a systematic process….”. No clear research question is formulated. Contrary to what is stated at the beginning of the discussion section (p 16), the paper does not provide data that prove that the designed intervention “improve guideline adherence”. Only the data presented in the other paper (the one published in BMC) allows such a conclusion.

We suggest thus to revise the paper in order to avoid any confusion with a paper presenting the results of a study that would have tested a well-defined hypothesis. It would be better to acknowledge from the start the descriptive, and in some respect, narrative character of your paper.

Another option could be to focus the paper on the first step of the intervention program development process: the formative research methods and their findings. It seems indeed that this study phase did include an impressive amount of data collection: 3 + 4 focus groups, a cross-sectional survey and a longitudinal one! And the corresponding results have apparently not been published so far.
The comments and suggestions made hereafter do not consider however this last option.

Major Compulsory Revisions
1) Please redefine clearly what is the aim of your paper and ensure coherence between the abstract and the background text. In my view, it could possibly be something like “showing how intervention mapping can be used to develop a theory- and evidence-based intervention”.
2) Explicit for the reader what is the specific scope of this paper with reference to your other published paper (BMC 2013).

Minor Essential Revisions
3) Explain what is the exact role of the “quality managers” mentioned in the paper. Is this function legally determined in the Dutch health care system ? Or is it a particular feature of the physiotherapy departments where the study was conducted ? Do these managers have a hierarchical role towards the basic PTs?
4) As far as a multimodal development process is described, a key information is lacking : no indication is given regarding the duration of each phase or step in the process. This time information would be of great interest when considering the transferability of the described process to other settings or other groups of health professionals.
5) In the Discussion section, no consideration is given to the intervention related costs. If you conclude (p 19) that “Intervention Mapping can be a valuable framework…”, you should also discuss feasibility aspects.

Discretionary Revisions
6) Abstract (line 2 in results): “Self regulation was appropriate because both…” Very unclear sentence
7) Background (last line p7) : “..adress the lack of adherence to the national CPG…” ref 14 and 15 should be mentioned here.
8) P 10 Intervention mapping : “…two interacting practice levels” : this seem to imply that the work environment is a physiotherapy department in a (or several) hospital, excluding thus private practices. Is this interpretation right ?

Level of interest: An article of importance in its field

Quality of written English: Acceptable

Statistical review: No, the manuscript does not need to be seen by a statistician.

Declaration of competing interests:
I do not have any competing interests as regard the publication or non-publication of the submitted manuscript