Reviewer’s report

Title: Designing an implementation intervention with the Behaviour Change Wheel for health provider smoking cessation care for Australian Indigenous pregnant women

Version: 0 Date: 13 Aug 2017

Reviewer: Joanna Moullin

Reviewer's report:

A lot of background work has gone into this study, including a vast number of publications. The TDF and BCW appear to be appropriate, thoroughly and effectively used.

It may work to add "implementation" prior to the word intervention throughout. Initially I thought the manuscript was better suited to a different journal, but as I progressed through I realised ICAN QUIT is in many ways an implementation intervention developed via BCW for evidence-based smoking cessation. This is clearer in some of the authors other publications, such as the study protocol http://bmjopen.bmj.com/content/7/8/e016095. Stage 3 confuses the issue further as the title mentions implementation options for the "intervention", however there is no further mention of implementation in the section.

You can frame ICAN QUIT as both a smoking cessation intervention and implementation strategy, by both targeting health providers' to provide EBP SCC (counselling and NRT) and patients' behaviour to quit, however be very careful with terminology as currently it is challenging to read. In addition to fit scope of Implementation Science the primary focus should be on implementation. I feel this is an excellent study, however the terminology needs to be tidied up if to be published as an implementation paper. I.e. be explicit in what the intervention is and what the implementation strategy is and what was being developed.

In the abstract the final sentence is not clear - how does training health providers at ABS develop an intervention? Similarly, how does using BCW develop improve culturally competent smoking cessation care? This framework is not specific for cultural competency. The article provides the answers and many steps were taken to ensure cultural competency, however this is not clear in the abstract. Finally, the implementation intervention of education and training does not link clearly in the abstract to the objective of developing an intervention.

From materials and procedures the manuscript starts to find itself, however the abstract and background need reworking. For example initially there appears to be confusion around the study objective - was it to use BCW to develop a smoking cessation intervention or was it to use the BCW to develop an implementation strategy or was it both. These need to be clear.

Step 1: Please be more explicit in describing the behaviours so readers can identify. Currently the text does not match the heading clearly.
Step 2: are the 5A's, ABC and AAR evidence-based? If so, it may be good to say "several EBPs are recommended for SCC" so it links to line 6 of the previous paragraph.

Steps 3 & 4 are excellent and very clear.

I suggest making it clear earlier and in the abstract that the implementation intervention involved using the BCW and COM-B twice, once for provider behaviour and also for patient behaviour. Although some sections refer to this as secondary rather than separate. Try to be more consistent and clear.

Formatting of references: Numbers in square parentheses should be prior to punctuation.

Thank you again for the opportunity of reviewing this manuscript. It is a wonderful and thorough piece of work that after a little reworking for an implementation audience, provides a valuable addition to the literature.

**Level of interest**

Please indicate how interesting you found the manuscript:

An article whose findings are important to those with closely related research interests

**Quality of written English**

Please indicate the quality of language in the manuscript:

Needs some language corrections before being published

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