Author's response to reviews

Title: Measurement of a model of dissemination for health care: Toward a testable theory

Authors:

Joan M Cook (Joan.Cook@Yale.edu)
Casey O'Donnell (O'donnell.Casey@gmail.com)
Stephanie Dinnen (Stephanie.Dinnen@yale.edu)
James C Coyne (J Coyne@mail.med.upenn.edu)
Josef I Ruzek (Josef.Ruzek@va.gov)
Paula P Schnurr (Paula.P.Schnurr@dartmouth.edu)

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Author's response to reviews: see over
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Dear Professor Michie,

Attached please find our revised manuscript entitled, “Measurement of a model of implementation for health care: Toward a testable theory” for consideration for publication in *Implementation Science*. We were delighted to learn that the Reviewers’ overall assessment was that our manuscript represented important work and that with appropriate revisions, it had “potential importance as one of the most methodical and comprehensive attempts to operationalize Greenhalgh's model.”

We thank the Reviewers for their constructive feedback and think that our manuscript is now more clear. We address the Reviewers’ questions and concerns below.

**Reviewer 1**

1. The Reviewer questioned our rationale for using the Greenhalgh model. At the U.S. National Institute of Health’s Dissemination and Implementation conference March 2012, Dr. Russell Glasgow commented that there are now “61 and counting” models of dissemination and implementation. It is far beyond the scope of our manuscript to address how other models are comparable and deficit. We have provided in the manuscript a justification for why we chose to focus our attention on Greenhalgh’s model.

   Namely, we found Greenhalgh and colleagues’ model is derived from systematic review of 13 distinct research traditions, internally coherent, and largely evidence-based. Greenhalgh and colleagues’ work builds on the foundation of Everett Rogers and has influenced our decade of dissemination research. Greenhalgh’s work is consistent with findings from other systematic narrative reviews (e.g., Durlak & Dupre, 2008; Fixsen et al. 2005, Stith et al., 2006) in identifying factors found to be related to implementation. Finally, the model was the starting point for the Damschroder et al. (2009)’s Consolidated Framework for Implementation Research and is consistent with their findings. We recognize that others may have preferences for different models, but we believe our choice of Greenhalgh’s is well justified.

   We also now indicate that Greenhalgh identified three important potential outputs from her model: (1) a parsimonious, evidence-based model for "considering" diffusion, dissemination and implementation of innovations, (2) identifying
knowledge gaps where future research in dissemination and implementation should go and (3) a transferable methodology for undertaking systematic reviews of evidence-based research. The model was intended as an “aide memoire” and not as a prescriptive formula.

2. The Reviewer requested more information about the process of our systematic review and how we validated our search strategy. We have now made this clearer in the methods section. In brief, after culling redundant articles, those not published in English and any dissertations, we reviewed abstracts of any remaining articles.

Addressing the Reviewer’s comment, we also now note in our conclusions that if we had used different search terms (for implementation such as uptake, knowledge transfer as well as for some of the key constructs), we may have identified additional relevant papers.

3. We have now clarified that the review of measures resulted in a pool of potential items but we also used brainstorming and consensus to refine and construct some items.

4. We did not attempt to assess construct validity during our pilot work with this measure. As part of a U.S. NIMH funded implementation study, we now have survey and interview data from over 200 mental health providers across the United States. We are in the process of writing a paper concerning psychometric properties of the survey instrument and intend to submit this to Implementation Science in a few months.

5. Per the Reviewer’s suggestion, we have added a limitations section. Among other things, we note that further work on construct validity is needed.

6. We are now more consistent in our use of the terms "dissemination," "implementation," “uptake,” “adoption” and “change.”

7. In our abstract, we removed the description of our objectives and rewrote our methods.

8. We now report more of our results in the abstract.

9. In the abstract, we now add a conclusion that relates directly to the findings.

10. We have now removed all of the introductory information on the various kinds of approaches to facilitating change.

11. We removed the first 19 references from our previous manuscript.
12. We provide a sentence in the results section explaining how the section is structured (e.g., first by presenting a brief background relating to the construct and then presenting our study findings).

13. We have followed both Reviewer 1 and 3’s substantive suggestions for reformatting table 1. We removed the operational definitions in the text, included the operational definitions in the table, refer to the table in the main text, and provide the rationale for inclusion/exclusion in the text without repeating information contained in table. We have also created a column for administrative data. We now walk the reader through the table in the same order as listed in the text.

14. We have now removed all operational definitions from the text.

15. We have now closely proofread the table.

Reviewer 2

1. Please see Reviewer 1 #6.

2. We now state how we anticipate the operationalization of this model will aid the implementation process (i.e., how it might be used, at what point in the implementation process and by whom).

3. We believe we have reached a stage where the model is now well operationalized and thus capable of being refined with data. As we stated above, we now have survey and interview data from over 200 mental health providers across the United States. In our preliminary analysis of the internal consistency of the survey constructs, almost all have very strong alphas. Thus we are confident that over time with some small tweaking, these instruments can facilitate a significant advancement of the field of implementation science.

We also have data on providers' self-report use of two evidence-based treatments, as well as access to patient outcome data. Thus we plan to test how the Greenhalgh constructs predict self-reported therapy use. There are numerous ways we plan to test this relationship and we have now briefly noted these in our conclusion section.

4. Per the Reviewers’ suggestion, we now acknowledge that further testing is needed to ensure the translation of our measure into other contexts, particularly those involving implementation of interventions that are not mental health in nature.

5. We acknowledge that the model does not include important social cognition constructs and cite one of the suggested published papers on this topic.

6. We have correctly the identified minor grammatical and typographical errors.
Reviewer 3

1. The Reviewer suggested that we could have introduced applicable definitions from Damschroder and colleagues’ (2009) Consolidated Framework for Implementation Research (CFIR), rather than inventing new ones. This was not possible for us to do. At the time of the writing of our National Institute of Mental Health grant application in spring 2009, results from the CFIR were not yet publicly available. We were already well underway in construction of our survey prior to publication of the CFIR model. We now propose in the discussion section that future refinement of our measurement tools could incorporate some definitions from the CFIR.

2. Please see Reviewer 1 #6.

   Also, we now more clearly state our objectives to (1) conduct a systematic review of measures that capture Greenhalgh et al.’s six main constructs; (2) operationally define the factors in the six main constructs and (3) integrate items from existing measures as well as to devise other items through consensus to assist in the measurement of Greenhalgh’s model.

3. Please see Reviewer 2 #2.

4. We now mention the use of administrative data earlier in the text as well as note it in the abstract.

5. Please see Reviewer 1 #13.

6. We have re-written awkward and incomplete sentences.

7. We have removed “wandering” text such as that previously listed under Adopter characteristics.

We hope that the manuscript now achieves the potential recognize by the Reviewers and that it meets with your acceptance. Thank you for the opportunity to respond to Reviewers’ comments and make these improvements.

We thank you further for considering our manuscript for publication in the *Implementation Science*. All correspondences should be directed to me via telephone 203-856-2782 or e-mail: Joan.Cook@yale.edu

We look forward to your response.

Sincerely,
Joan
Joan M. Cook, Ph.D.
Associate Professor
Yale School of Medicine
Department of Psychiatry