

Author's response to reviews

Title: Translating clinicians' beliefs into implementation interventions (TRACII): a protocol for an intervention modeling experiment to change clinicians' intentions to implement evidence-based practice.

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Author's response to reviews:

Dear Editor

Thank you for the very helpful comments on our protocol manuscript. We have reviewed the referee reports and have addressed the concerns they raise in a revised version of the manuscript, which has been re-submitted today.

Our point by point response to each referee report follows below:

Version: 1 Date: 16 January 2007

Reviewer: Anne Sales

Reviewer's report:

General

This is a well-written and interesting description of a planned study. It should be of interest to readers of Implementation Science.

Major Compulsory Revisions (that the author must respond to before a decision on publication can be reached)

I found the transition from the section headed "Need for taxonomy" to "Selection of interventions" abrupt and unclear. Are the authors proposing that the discussion of categories of theory or non-theory basis for selecting interventions be regarded or used as a taxonomy? How does this fit with the discussion about levels of organization, which is discussed at the beginning of "Selection of interventions" section, but then isn't referred to in the subsequent discussion of the theory underlying (or lack of theory underlying) intervention design? Also, I think there is a difference between selecting and designing interventions, but the terms are used in this paper without clear distinction. The authors may be doing both, but it would help to clarify when they are discussing selection, and when they are discussing design.

1. Authors' response to reviewer:

We thank the reviewer for these very helpful comments and suggestions. We agree that the logical transition between the different sections of the manuscript was not optimum. Sections of the manuscript

have thus been re-ordered and the text edited to improve the flow and clarity of the protocol.

A second major item, in my view, is that the intervention is not described. This may be the result of confusion on my part-- at one point, early on, the authors say that they will survey respondents/participants in part to elicit their beliefs and intentions, and that they will then design or select an intervention, but this is really not clarified later in the text. I think that either this should be described as deliberately omitted if it is, or the process of intervention needs to be clearer. My preference would be to have a clear description of the intervention unless it is to be determined somehow by the initial responses. If this is the case, then it would be helpful to know what the process of intervention selection will be, and what the parameters will be that

will allow the investigators to select or design (and it would be good to be clear on this point) the intervention.

2. Authors' response to reviewer:

The process of developing the interventions is part of the overall study presented in this protocol, hence we cannot provide a description of the interventions within this manuscript. However, we have added some description of the proposed development process as recommended by the reviewer (See page 8, last para "Design"). We plan to document and publish this process, giving a detailed description of and the underlying rationale for the final interventions. This will be in addition to reporting their evaluation in the proposed randomised controlled trial.

Minor Essential Revisions (such as missing labels on figures, or the wrong use of a term, which the author can be trusted to correct)

I did not identify any.

Discretionary Revisions (which the author can choose to ignore)

This is a thought stimulated by the protocol, not a criticism of this particular protocol. While I applaud the parsimony of the proposed project, I wonder if the investigators have considered the feasibility of replicating this project using standardized or simulated patients? It would be more expensive than using postal survey methods, but it would still only require a small sample in each arm, for the reasons they point out in this study. However, the verisimilitude for providers would be much higher, and would permit a much more robust opportunity to look beyond intent to action. This is not an issue I raise with respect to this study, but something to consider for the future.

3. Authors' response to reviewer:

We thank the reviewer for this suggestion.

Version: 1 Date: 27 December 2006

Reviewer: Hayden Bosworth

Reviewer's report:

Major Compulsory Revisions (that the author must respond to before a decision on publication can be reached)

The use of psychological theories to explain clinicians intentions and eventual behaviors is an important area of research and likely to be instrumental in ensuring implementation of evidence-based guidelines. However, while intentions are significant predictors of actual behavior, further examination of the predictive

validity of these psychological theories emphasizing behavioral intention are minimal. There is often a discrepancy between intention to adhere to guidelines and actual adherence. That is, the relationship between intentions and behavior is less strong; in prospective studies, Theory of Reasoned Action and Theory of Planned Behavior variables, for example, only account for 20% to 40% of the variance in health behaviors 1-3.

4. Authors' response to reviewer:

Again we thank the reviewer for these very helpful comments and suggestions.

We agree that there is a real potential for psychological theory to provide an important contribution to the successful implementation of evidence-based recommendations. The predictive ability of intention has been demonstrated by four reviews, suggesting a robust relationship between intention and behaviour (4-7). In addition, the proportion of variance in behaviour explained by intention, 20% to 40%, could be described as a "medium" to "large" effect (8). We have found that theories predictive of individual health behaviour also explain similar amounts of the variance in the intended and actual clinical behaviour of health professionals (9). As this is a novel approach to intervention development and evaluation in the field of implementation our previous studies have investigated the utility of a range of theories (10). Based on this work, constructs from more than one theory, including post-intentional variables, will be used to improve the ability of the theoretical framework to explain differences or changes in behaviour.

A significant limitation of the current manuscript is a discussion of a planned study. It would have been more informative to evaluate and discuss the studies after they had been conducted and data were available. If the investigators chose to describe the ongoing research as a method for evaluating implementation of a provider intervention, greater detail will be required with a particular focus on implementation and evaluation. While beliefs of the healthcare professional may be one factor of many that influences the effectiveness of intervention, there lacks discussion of why beliefs was chosen as the focus of the current paper.

5. Authors' response to reviewer:

The manuscript describes a study protocol and we have now clarified this in the manuscript title. In the programme of work leading up to this protocol we have systematically evaluated the utility and feasibility of using psychological theory in the area of implementation research. We have found that psychological theory can explain variance in clinical behaviours (10) and have developed a methodology for the development and evaluation of implementation interventions (11). The study presented in the current protocol builds on this, and other previous work, to include the use of empirically tested behaviour change techniques in the development of targeted interventions and their evaluation within the context of a randomised controlled trial.

The introduction is not well integrated. There lacks transitions between the sections. The manuscript reads as if it is a grant proposal. Given that portion of the readership may not be as familiar with current psychological theories, further

explanation and definition of terms would improve the readability of the manuscript.

5. Authors' response to reviewer:

Improvements to the transition between sections and clarity of the protocol manuscript have been made (see author response #1).

In the proposed study, it is not clear why the investigators, in addition to accessing behavioral intentions and behavioral simulations, did not access actual behavior. This could be assessed in many ways including

simply reviewing medical records.

There lacks a discussion and conclusion of the current study and how it integrates previous research. Most importantly, it is unclear how the proposed study will demonstrate or inform our knowledge of implementation.

6. Authors' response to reviewer:

Our overall aim is to develop a generalisable methodology to guide the design, evaluation and refinement of implementation interventions prior to their use in the real world setting. Such an approach would provide greater efficiency in the planning, choice and development of interventions and greater confidence that an intervention will have an effect. This would ultimately reduce the number of costly, real world trials.

Minor Essential Revisions (such as missing labels on figures, or the wrong use of a term, which the author can be trusted to correct)

The abstract requires some conclusion or generalization of the contribution of this study to the larger body of literature.

In general, the manuscript requires further proofreading. The second paragraph, last sentence, for example, is missing punctuation and is an awkward sentence.

The section on selecting interventions has limited empirical support. It is not clear if the authors have developed the five bases for selecting interventions or there is support for these approaches. In general, statements like 'almost all of the implementation interventions conducted to date have selected interventions using intuitive/non-theory analytical or empirically successful methods' are unsubstantiated.

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2. Sheeran P, Orbell S. Do intentions predict condom use? Meta-analysis and examination of six moderator variables. *Br J Soc Psychol* 1998;37(Pt 2):231-50.
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8. Predicting and explaining intentions and behavior: How well are we doing?, *Journal of Applied Social Psychology* 28 (1998), pp. 1317-1338
9. Eccles MP, Hrisos S, Francis J, Kaner E, Dickinson HO, Beyer F, et al. Do self-reported intentions predict

clinicians' behaviour: a systematic review. Implementation Science. 2006, 1.28.

10. Walker A, Grimshaw JM, Johnston M, Pitts N, Steen N, Eccles MP. PProcess modelling in ImpleMEntation research:selecting a theoretical basis for interventions to change clinical practice. BMC Health Services Research 2003;3:22

11. Bonetti D, Eccles M, Johnston M, Steen IN, Grimshaw J, Baker R, et al. Guiding the design and selection of interventions to influence the implementation of evidence based practice: an experimental simulation of a complex intervention trial. Soc Sci Med 2005;60:2135-47.

Yours faithfully

Susan Hrisos