Author's response to reviews

Title: Translating clinical training into practice in complex mental health systems: toward opening the "Black Box" of implementation

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Author's response to reviews: see over

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Dear Editors and Reviewers,

Thank you for reviewing our manuscript, "Implementing Effective Educational Interventions in Complex Mental Health Systems." We are submitting a revised version of the manuscript which incorporates your suggestions, and we feel your suggestions considerably strengthened the paper. The revisions have been extensive and in many regards the paper has been re-written. The revised title is Translating Clinical Training into Practice in Complex Mental Health Systems: Toward Opening the "Black Box" of Implementation. The revised version contains 3703 words and one table. There are no conflicts of interest for any authors. We respond to your comments below:

Editor's Comments:

1. I suggest labeling your article a "short report" if you wish to emphasize the findings, or a "debate" article if you wish to emphasize conceptual contributions.

   Response: We have identified this article as a debate article on our re-submission.

2. The key point I'd like you to address is the specific role and value of the manuscript in the broader research agenda. Given the design and nature of the data you present, it is not possible to rule out unmeasured factors that might have contributed to differential success of the two implementation efforts. Thus, the manuscript should not be presented as a hypothesis testing effort with strong conclusions regarding causality, but instead as a contribution to other phases or elements of a program of research.

   Response: We have removed the hypothesis testing language to emphasize that the activities reported upon are a progression into a program of research and educational interventions meant to enhance the diffusion of evidence-based mental healthcare. We also include a section on limitations.

3. In sum, to address these questions and better clarify the role of the manuscript, please (1) adjust the wording to be more consistent with the limitations of your design (e.g., we compare and contrast the two interventions in order to highlight those intervention elements most critical to success;) and (2) revise the Background and concluding sections of the manuscript to clarify the role and contribution of the manuscript.

   Response: We have adapted both the Background and concluding sections to emphasize the most important elements for readers from our training experiences.

Referee 1's Comments:

Major Compulsory Revisions:

1. The authors describe how their first program, training in group therapy techniques, was unsuccessful at achieving successful translation into routine care while their second program, training in psychosocial rehabilitation skills was "very successful." Unfortunately, they do not provide any data to support either statement. **How were the metrics of successful patient outcomes defined?** Examples could be quality of life, symptom burden, health care utilization, and health care costs. Please clarify.

   Response: Success in the first program was measured using administrative data on the number and percentage of veterans receiving group therapy (see p. 6). For the second program success was in the achievement of pre-determined site-specific goals. Some sites exceeded goals. The process is described on p 10. In addition, the second intervention has been sustained over time and expanded, largely through efforts of the trainees. These can be considered indicators of success.

2. What were the implementation goals used by the study facilities (p. 8, last sentence para 1)?

   Response: Site-specific implementation goals are included in the revised text. These goals involved the addition of new services or the expansion of existing services. At the time, most sites had no organized psychosocial rehabilitation (PSR) program and very few PSR services. Examples of goals are establishing case management, starting a social skills training group, initiating a compensated work therapy program. A site's implementation goal depended on the site's unique needs.

3. The authors are to be applauded for their paucity in citing the medical literature. Indeed, they cite just 13 relatively recent references. Yet, many of their findings are consistent with Wagner's six-step Chronic Illness model (e.g., leadership, decision support, delivery system redesign, etc.) that they seem to have overlooked. Is this an oversight?

   Response: While Wagner's model for reform of the healthcare system to accommodate chronic illness treatment is related to our work, it is broader, referring to change of an entire system of care. Our work was focused upon the adoption of individual interventions (e.g., group therapy or psychosocial rehabilitation) as a result of an educational program. Thus, we feel that the work of Rogers (1996) on the diffusion of innovations and Fixsen et al. (2005) are more appropriate.

4. Discussion. Do the authors care to speculate on what aspects of their intervention were most essential to their success? Does their approach have any limitations? Do they have any estimates on the costs and/or FTE effort required to implement their successful program compared to their less successful one?

   Response: We have made mention in this revision of each of these elements noted by the reviewer. While cost is acknowledged, it was not examined, but would be a fruitful venture for further research, which is a component of our program of research.

5. The manuscript devotes considerable space to describing “lessons learned” for how to implement an educational intervention and it includes a helpful Lessons Learned table summarizing these lessons (Table 1). However, as presented, the table is too detailed. Perhaps its clarity may be enhanced by focusing on lessons learned/advice for readers interested in implementing their own educational interventions and deleting the columns on the group therapy and psychosocial interventions?

   Response: We have simplified the table to focus on the most important lessons learned from our training interventions.

Referee 2’s Comments:
General Comments:
Two different training programmes are compared, instead of the same training programme after adjustment based on experiences and evidence from implementation research. Furthermore, it’s a qualitative analysis of elements that might affect implementation of a training programme. Both points weaken the strength of the conclusions that can be drawn. Nevertheless, the paper contributes to implementation knowledge. The findings are not new, but it gives readers an idea how 'theoretically based principles' can be translated in concrete interventions.

Major Compulsory Revisions
1. Abstract:
   The abstract suggests that insight into the 'black box' of an unsuccessful educational intervention combined with evidence from implementation research helped to develop and implement a successful educational intervention. The last paragraph of the 'Background' state, however, that they conducted two training programmes, and afterwards analyzed the 'black box' to find out why one training programme was successful and the other wasn't.

   Response: We have revised the abstract to address the referee’s concerns.

2. Main text:
   Background. The second paragraph leads to confusion. Reading the 'results' and 'abstract', the authors first conducted the first training and based on negative findings, they adjusted the implementation strategy of the second training programme based on their experience with the first training and the elements of an implementation model. The second paragraph, however, suggests that the two training programmes were conducted and afterwards the implementation model was used to identify elements of success. I guess the first is true, and used that as starting point for my comments. Obvious the second paragraph must be re-written so it is in line with abstract, methods and results.

   Response: We have revised the background section to address the referee’s concerns.

3. For the structure of the paper, add 'Method' as heading.
   Response: We have revised this paper to follow the debate paper format and use the journal’s required debate paper sections of background, discussion, and summary.

4. I miss a description of the design. The second paragraph 'Setting' could be used with some modifications to describe the design of the study. For example "In 2001, to attests to efficacy and effectiveness of group treatment modalities. A group therapy skills training was developed and implemented with the aim to. etc. Despite expectations the training had not resulted in increased use of group therapy. Later, in 2003, . The training programme was developed and implemented with the aim to etc. To enlarge the chance of successful translation of knowledge into routine care, the experiences with the first training programme and implementation model by Fixsen et al were used to modify the second training programme. In this paper we compare and contrast the two interventions in order to highlight those intervention elements most critical to success."

   Response: We describe the design of each intervention in the two "intervention design and content" sections.

5. 2nd paragraph 'setting':
   "...yet an assessment of 136 mental health providers..." Out of 1000 providers (1st paragraph)? The training included 136 providers, so is the outcome of assessment not an outcome of pre-measurement? Is it valid to extrapolate this outcome to all providers?

   Response: The training of 136 providers was not meant to be a random sample from the 1000 available and thus we are careful not to state that these results reflect what the larger population would report or how they would respond under the same circumstances. Selection was limited by the resources available to provide the training..

6. Add heading 'Results' after aim of the paper.

   Response: We have revised this paper to follow the debate paper format and use the journal's required debate paper sections of background, discussion, and summary. We report the results of each training in the two "outcomes" sections.

7. Give a brief to-the-point description of the relevant elements of both training programmes and the implementation strategy. The aim of the paper is not to report on effectiveness of the two programs, but to identify which elements of the intervention and implementation strategy contribute to the effectiveness. I would expect more emphasize on the content and implementation strategy, instead of on research design and outcomes. The outcomes of process evaluation are, however, important for the identification of barriers and facilitators and should remain included. The authors are recommended to replace the outcomes of process evaluation to 'Implementation lessons', as it explains the importance of some components and why the intervention wasn't successful. For example "Trainees at one site felt that they were forced to participate in the training but were not interested in doing so" (page 7). This expresses the 'motivation of trainees' (see page 13).

   Response: The headings were changed and text modified to emphasize the lessons learned in these sections.

8. After the description of the two training programmes, I would expect a paragraph "Implementation lessons" (instead of 'a different approach needed) in which the two training interventions are analyzed against the implementation model in order to highlight those intervention elements most critical to success. The elements reported in the first three paragraphs 'different approach needed' should be incorporated in the different components of the implementation model.
   Response: The discussion section has been significantly revised to highlight how the important elements of the training programs fit into the model we propose to conceptualize the structure and implementation of future educational programs.

9. Program evaluation
   I have doubts whether or not the decision on successfulness of the training programmes is made correctly, as the effect measures of both training programs are different. For the first training the actual percentage of patients receiving for the second training the extent to which each site met their site-specific initial implementation goals was used as effect measure. If I understand it correctly these goals are not formulated at the patient level, but for example 'train at least 5 clinicians'. Difference in outcomes makes it difficult to compare the success of these two interventions. Furthermore, although the percentage of patients receiving group treatment did not increase, the authors didn't assess whether or not the quality of group therapy increased which might be the case as self-efficacy of the trainees increased. Is it possible to say something about the quality of group therapy? Why is this not considered?

   Response: Due to the fact that these were two different training programs, the outcomes had to be specific to what each program was aimed to accomplish. This most important comparison is not on the program outcomes, per se, but on the implementation of the programs into the mental health services participating at the site level. Thus, the extent of implementation at each site is the basis for the comparison between programs, not patient-level assessments. It is true that it is possible that existing group therapy could have increased in quality; however, the aim of the program to site-level efficiency concerns to manage growing case loads with minimal increases in resources (i.e., staff). Thus, the primary aim was to examine administrative data concerning the extent to which there was an increase in the percentage of veterans receiving group therapy, as opposed to individual-level treatment. Future research should definitely examine fidelity and quality of service delivery.

10. Discussion
    The discussion is limited to top-down versus bottom-up approach. I miss the limitations of the study. See also above, are the outcomes appropriate to measure successful implementation? Was the first training programme also adopted according to the implementation model in order to improve group therapy? Why not? If so, was it successful? This would have been a stronger comparison in order to identify elements of success. What elements really matter? Which elements determine success? Comparison to other studies which report on the effects of educational intervention, why are facilitators so important?
    Response: A limitations section was added to the discussion section. The first training program did not utilize the implementation model for reasons discussed in the background. The most important elements are highlighted in the discussion to clarify to readers what

appeared to be critical to consider. We also expanded our discussion of facilitation to emphasize the effect we believe it had upon the differential success rates of the programs.

11. Conclusion
    The authors state that in order to achieve successful translation into routine care, facilitators are needed. I think they can't draw this conclusion (last sentence); it's too specific. The second programme was successful, but in this programme different elements were included which weren't included in the first training programme. Basically, the first programme lacked an implementation plan (including facilitators, identification barriers and facilitators, etc.) whereas the second programme was based on an implementation model.

    Response: We include a model that illustrates why we believe that facilitation is one key component to implementation. It is by no means the only important element, but one that was most likely effectual in the success of the second program.

12. (Discretionary comments) The authors use various abbreviations, and although these are fully described the first time a reader who is not familiar with the terms have to go back to see who or what organisation is involved. In some cases it would help if the authors do not use the abbreviations but refer to the person or organisation (without using formal abbreviations) who is involved.

    Response: Several abbreviations were not used later in the paper to increase the readability of the manuscript.

Thank you for considering our revised manuscript for publication.

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