Reviewer’s report

Title: Evaluating the implementation of the PACE Steps to Success Programme in long-term care facilities in seven countries according to the RE-AIM framework

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Reviewer: Meredith Kirk

Reviewer's report:

This paper presents a process evaluation that was conducted as part of a larger cluster randomized controlled trial of the PACE "Steps to Success" program. The authors used mixed-methods to conduct the process evaluation focusing on implementation of the PACE program in the larger trial and were guided by the RE-AIM Framework.

Overall, this is a well-written paper that is clear and easy-to-follow. The authors present a comprehensive and robust process evaluation exploring various facets of implementation (reach, adoption, maintenance, etc.), using complementary quantitative and qualitative methods. Major feedback is presented below, as well as minor comments.

Background: Further clarification on the clinical intervention (PACE program) vs the implementation intervention (i.e., implementation strategy/strategies) would be helpful. As-is, it is unclear what exactly was part of the clinical intervention (everything in Figure 1; what were the 'core components' of the clinical intervention - all 6 steps?) vs the implementation intervention/strategies (e.g., use of a 'champion' - the PACE coordinator; as well as training sessions that were delivered over 12 months). When specifying the implementation strategies used, it would be helpful if the authors could map them onto a framework (e.g., the ERIC framework by Powell et al.). Also, if there is a website for the PACE program that could be included, that would be helpful to reference in case readers wish to learn more about the program/implement it at their organization. As a researcher who focuses on hospice/end-of-life/palliative care, some evidence showing concordance of the PACE program with clinical practice guidelines for palliative care (and/or evidence of the original clinical intervention showing positive effect on health outcomes) would be useful.

Methods: Some discussion of the timeline and triangulation between the quantitative and qualitative methods would be helpful. For example, were quantitative data analyzed first? Did results of quantitative analyses inform qualitative data collection (i.e., was the team able to tailor interview guides/discussion guides based on quantitative results they were seeing so that they could ask targeted questions)?

Methods/Results/Discussion: Overall, the methods used by the authors were comprehensive and rigorous. However, I had some concerns about their measure of implementation. Implementation was measured at the level of the implementation strategy (how many educational sessions were delivered/attended), but not at the level of the clinical intervention (once trained, how were LTCF PACE coordinators implementing each of the 6 steps in the PACE model?). My main
concerns about this approach are that although this measures implementation of the implementation strategy, it does not measure implementation of the PACE model at the LTCFs. Quantitatively/systematically assessing implementation of the PACE model itself may have shed additional light on the main results of the trial which showed little effect on patient outcomes. If such data are presented as part of a separate publication, a reference to the publication for further details would be helpful to the reader. Additionally, the data collected from LTCF staff (PACE coordinators) seemed to focus only on the perceived effectiveness of the country instructors, not the PACE program itself. If the authors have any data that would point to implementation of the PACE model itself, that would be helpful to include. The barriers/facilitators section speaks to this some (e.g., resistance of staff members to use PACE documents), but additional data would be helpful, as it would help paint a more comprehensive picture of where the "voltage drop" occurred in the trial, since the authors note there were no effects on patient outcomes (symptom burden in last week of life). As-is, the reader is left to wonder if it was one of several issues: ineffective clinical intervention? Suboptimal implementation of ineffective trainings (trainings given to PACE coordinators by country trainers)? Poor implementation of the PACE program itself, despite an effective clinical intervention and effective implementation intervention. If such data were not collected, acknowledging this as a limitation may be appropriate.

Discussion: In the Discussion, the authors mention that the barriers/facilitators map onto CFIR. Some formal mapping would be helpful, if possible. For example, noting that PACE Program/way of delivery maps onto the characteristics of the intervention domain, people working with PACE maps onto the characteristics of individuals domain, as well as linking other findings to specific constructs.

Minor Comments

* Line 229 - "the proportion of residents for who had a completed pain and/or depression assessment" - I believe "for" should be deleted

* Line 309 - "so that he/she could incorporate examples from own practice" - I believe "his/her" should be placed in between "from" and "own"

* Line 319 - consider "intention to maintain" instead of "intention to maintenance"

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