Reviewer’s report

Title: Relating process evaluation measures to complex intervention outcomes: findings from the PACE-UP primary care pedometer-based walking trial

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Reviewer: Amy Gray

Reviewer's report:

I have appreciated the opportunity to read this paper which provides a clear articulation of how the MRC Framework for Complex Interventions can be applied to look at the relationship between process measures and outcomes. This type of research, and demonstration of ways to assess and link process to outcomes are needed. Furthermore, the authors have managed to distill their methods and results in clear and concise writing in this paper. I congratulate them on their effort to both conduct the research and report their findings.

My main comments are in relation to the conclusions in the discussion. At line 18 on page 10 the authors comment that one of the novel aspects of their study in the inclusion of 2 perspectives; nurse intervention delivery and the participant responsiveness. However, I feel this is an over-representation of the process measures. Although the nurses recorded the sessions attended, the number of session attended seems to be another factor relating to participant responsiveness. In addition all three of these process measures would seem to relate to participant motivation - although the authors make it clear that they are reporting on an association and not causality. There would be value in directly commenting on this particular issue in the paper. Do they have any information from their qualitative study which may support or refute this?

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