**Reviewer's report**

**Title:** Effectiveness of a Community Program for Older Adults with Type 2 Diabetes and Multimorbidity: A Pragmatic Randomized Controlled Trial

**Version:** 1  **Date:** 28 Jan 2020

**Reviewer:** Malcolm Battersby

**Reviewer's report:**

Please include all comments for the authors in this box rather than uploading your report as an attachment. Please only upload as attachments annotated versions of manuscripts, graphs, supporting materials or other aspects of your report which cannot be included in a text format. Please overwrite this text when adding your comments to the authors.

The topic of older persons with diabetes and multi-morbidity receiving evidence based self-management support to improve physical and mental quality of life in a pragmatic real world setting is important, timely and of international significance. The protocol paper describes the trial design in great detail with the appropriate rationale for a pragmatic complex design using SPIRIT and CONSORT guidelines and processes. There is little content detail provided on the intervention(s) ie to improve self-management and inferred behaviour change to achieve improved health outcomes ie quality of life. Similarly in this results paper there is little detail on the intervention and this may provide an indication of the reasons for the null result of no difference between the intervention and control groups. A distinction has been made to justify this trial ie to target the older patient - this is not reflected in the design of the intervention. There is no indication of consumer co-design of the materials and interventions as a whole. How has the intervention been adapted for the elderly? Carers are involved as are peers but what has been their role and benefit, how will they assist behaviour change and reinforcement?

Other questions arise about the lack of medical involvement in the design and delivery of the trial along with clinical outcomes. The lack of clinical outcomes is mentioned in the results but not explained. Other self-management programs in multi-morbidity have noted the need for a multidisciplinary team. In this case all of the team are present except the doctor. This is presumably linked to the lack of clinical outcomes. Use of clinical outcomes could have been a motivating factor, directed some of the self-management tasks and engaged the patients doctor in the intervention and motivation of the patient to achieve their goals. As to the intervention itself- various principles are mentioned and theory but little is provided on a specific model or approach which is linked to competency and fidelity eg much of the content seems based on a Stanford CDSM approach but is missing the detail of an evidence based care planning approach such as the Flinders Program. In other words the intervention might not have been powerful enough in determining specific barriers, goals, action plans and quantifiable outcome measures that linked to clinical and quality of life outcomes. Competency and fidelity are not measured. Another factor not identified in possible reasons to explain the lack of effect is the time ie 6 months is a minimal period to achieve not only behaviour change but change in clinical measures which in turn lead to improved quality of life. 9 - 12 months is more likely a realistic time to see these
changes and to see a cost benefit. There is no attempt to explain the low uptake rate of the consent to enrol ie 22% agreed to the trial - this is a low recruitment rate especially for the older patients who are usually more compliant. Did this group skew the result as possibly already being good self-managers and likely to agree to be in a research study? No attempt is made to discuss the lower than target total enrolment number and whether this could have led to a type II error.

**Are the methods appropriate and well described?**
If not, please specify what is required in your comments to the authors.

Yes

**Does the work include the necessary controls?**
If not, please specify which controls are required in your comments to the authors.

Yes

**Are the conclusions drawn adequately supported by the data shown?**
If not, please explain in your comments to the authors.

Yes

**Are you able to assess any statistics in the manuscript or would you recommend an additional statistical review?**
If an additional statistical review is recommended, please specify what aspects require further assessment in your comments to the editors.

I am able to assess the statistics

**Quality of written English**
Please indicate the quality of language in the manuscript:

Acceptable

**Declaration of competing interests**
Please complete a declaration of competing interests, considering the following questions:

1. Have you in the past five years received reimbursements, fees, funding, or salary from an organisation that may in any way gain or lose financially from the publication of this manuscript, either now or in the future?
2. Do you hold any stocks or shares in an organisation that may in any way gain or lose financially from the publication of this manuscript, either now or in the future?
3. Do you hold or are you currently applying for any patents relating to the content of the manuscript?
4. Have you received reimbursements, fees, funding, or salary from an organization that holds or has applied for patents relating to the content of the manuscript?
5. Do you have any other financial competing interests?
6. Do you have any non-financial competing interests in relation to this paper?

If you can answer no to all of the above, write 'I declare that I have no competing interests' below. If your reply is yes to any, please give details below.

'I declare that I have no competing interests'

I agree to the open peer review policy of the journal. I understand that my name will be included on my report to the authors and, if the manuscript is accepted for publication, my named report including any attachments I upload will be posted on the website along with the authors' responses. I agree for my report to be made available under an Open Access Creative Commons CC-BY license (http://creativecommons.org/licenses/by/4.0/). I understand that any comments which I do not wish to be included in my named report can be included as confidential comments to the editors, which will not be published.
I agree to the open peer review policy of the journal