PEER REVIEW HISTORY

ARTICLE DETAILS

TITLE (PROVISIONAL)	Systematic review of patient-engagement interventions: potentials for enhancing person-centred care for older patients with multi-morbidity
AUTHORS	Søgaard, Mathilde Bendix; Andresen, Katrine; Kristiansen, Maria

VERSION 1 – REVIEW

REVIEWER	Neuner-Jehle, Stefan Institute of Primary Care, University of Zurich, University Hospital of Zurich
REVIEW RETURNED	02-Mar-2021

GENERAL COMMENTS	This is an important topic to investigate, as the population of older, complex and multimorbid patients is increasing. The SR is well conducted using sound methodology. I recommend a minor revision while considering the following points: - Introduction: p.5, line 11: I am not sure if (the prevention of) burn-out problems among healthcare professionals is so closely linked to person-centered medicine. The approach might be meaningful and rewarding (as cited in reference 2), but there may even be a risk of increasing frustration and burn-out of providers as they do not have enough time for applying person-centered medicine. I suggest to leave the "decrease burn-out" term. - Methods p.6 and p.20, figure 1, first row: It is not clear what "other sources" have been used to detect additional records. Did you use "grey literature"? Please explain. - Results p.11, line 25-28: The short description of primary outcomes does not cover all of the them from the 10 studies. Please add disease-specific outcomes (Tinsel, Wong) and healthcare utilization outcomes (Ulin, Shively). In the discussion section, you correctly mention the other outcomes of interest. - Intervention p. 12. It would be interesting to learn more about the different interventions in the 10 studies. Please consider the option to present a simple overview of interventions here, e.g. self-activation and self-management, problem prioritization, goal setting (the latter used by the majority of the 10 studies). In the discussion, you correctly state that there is heterogeneity among the interventions; but here, it would be interesting to gain a summarized overview (from the table 1 data).

	The discussion and the conclusion sections are well-written, and I specially appreciate the caution of findings' interpretation.

REVIEWER	Williamson, Andrea University of Glasgow, GPPC, School of Medicine, Dentistry and Nursing, MVLS
REVIEW RETURNED	14-Jul-2021

GENERAL COMMENTS	This is a really important topic and an SR with this focus is welcome. The writing style is clear and succinct with some minor suggestions for improving it noted below. However I have some major concerns about the works stated aim and then what is done. The title and stated aim of the SR is to investigate this for older adults with multi-morbidity. However multi-morbidity is not defined in the introduction (eg 2 or more co-existing long term conditions) and some of the included papers are completely focused on one single morbidity- eg Tinsel et al BMC Family Practice 2013 is about hypertension management only. And then the eligibility criteria for the studies is '>60 more than one disease'. So the stated aim does not follow through into the papers included.From their titles this seems to be for 4 additional papers-so 5 out of 10 papers included are focussed on single diseases. If the title and subsequent aim was focussed on long term conditions including multi-morbidity this may then ensure rigour is acceptable but I am left still wondering how the eligibility criteria then follows through into the papers included. The other major change is that 'Patient engagement' is a complex construct that also requires definition in the introduction. This paper is about strategies and systems changes that increase engagement in care, so is not about attendance for care which is also an aspect of engagement. Linked to both of those major points is that the search strategy for this SR would have been complex and really influenced the papers retreived. To ensure this is rigourously reported and reproducable work by others include the actual search strategy, rather than the keywords. The reader would also find it helpful if the authors could summarise in the discussion their conclusions on the elements of the strategies and systems changes that are reflected in the evidence they have pulled together. Are there common themes in what they found or are they too disparate and low evidence to be of use at this point. This is of more use to health service planners and clinicians who may be thinking about service/system change in the here and now. I am not an SR methods expert- but also reflected on whether it is somewhat disingenious to give a total population number when really this is a synthesis of disparate populations and interventions. More minor comments: line 20 page 4- or 3- (the page numbering does not agree between the footer and the page numbering added) Multi-morbidity in (not at) old age Line 32 p5 suggest replace hospital with health care systems or another phrasing that reflects primary and secondary care settings. line 46 p5 settings- is plural line 33 page 6 specify which Scandinavian languages please in the main text Line 40 page 6 quoting 603 needs clarified as the results then report 746 papers; distinction needs to be clear in the text as well as the

	flow diagram

VERSION 1 – AUTHOR RESPONSE

Feedback from Reviewer 1	**Our response/revisions**
This is an important topic to investigate, as the population of older, complex and multimorbid patients is increasing. The SR is well conducted using sound methodology. I recommend a minor revision while considering the following points:	Thank you very much for your positive appraisal of our manuscript.
- Introduction: p.5, line 11: I am not sure if (the prevention of) burn-out problems among healthcare professionals is so closely linked to person-centered medicine. The approach might be meaningful and rewarding (as cited in reference 2), but there may even be a risk of increasing frustration and burn-out of providers as they do not have enough time for applying person-centered medicine. I suggest to leave the "decrease burn-out" term.	We agree, and the sentence has been edited accordingly, please see page 4.
- Methods p.6 and p.20, figure 1, first row: It is not clear what "other sources" have been used to detect additional records. Did you use "grey literature"? Please explain.	We agree that the term ”other sources” is too vague. The description of the search strategy has been edited to explain that only peer-reviewed literature was included in the chain-search process, please see page 5. Correspondingly, the terminology in Figure 1, first row, has been changed.
- Results p.11, line 25-28: The short description of primary outcomes does not cover all of the them from the 10 studies. Please add disease-specific outcomes (Tinsel, Wong) and healthcare utilization outcomes (Ulin, Shively). In the discussion section, you correctly mention the other outcomes of interest.	Thank you for suggesting this. We agree, and we have updated the results for the mentioned studies on p. 9.
- Intervention p. 12. It would be interesting to learn more about the different interventions in the 10 studies. Please consider the option to present a simple overview of interventions here, e.g. self-activation and self-management, problem prioritization, goal setting (the latter used by the majority of the 10 studies). In the discussion, you correctly state that there is heterogeneity among the interventions; but here, it would be interesting to gain a summarized overview (from the table 1 data).	We agree that it would be relevant to describe interventions in the included studies. Due to limits on the allowed number of words, we have very briefly mentioned a simplified overview of the interventions in the 12 included studies, please see page 9, in addition to the description of interventions presented under each study and in Table 1. We hope these changes have improved the readability of the Results section.
The discussion and the conclusion sections are well-written, and I specially appreciate the caution of findings' interpretation.	Thank you for this positive feedback.

Feedback from Reviewer 2	Our response/revisions
This is a really important topic and an SR with this focus is welcome. The writing style is clear and succinct with some minor suggestions for improving it noted below. However I have some major concerns about the works stated aim and then what is done. The title and stated aim of the SR is to investigate this for older adults with multi-morbidity. However multi-morbidity is not defined in the introduction (eg 2 or more co-existing long term conditions) and some of the included papers are completely focused on one single morbidity- eg Tinsel et al BMC Family Practice 2013 is about hypertension management only. And then the eligibility criteria for the studies is '>60 more than one disease'. So the stated aim does not follow through into the papers included. From their titles this seems to be for 4 additional papers- so 5 out of 10 papers included are focussed on single diseases. If the title and subsequent aim was focussed on long term conditions including multi-morbidity this may then ensure rigour is acceptable but I am left still wondering how the eligibility criteria then follows through into the papers included.	Thank you so much for your positive appraisal and for the constructive suggestions for how to improve our manuscript. We agree that there was a lack of transparency in the manuscript related to the definition of multi-morbidity. As correctly mentioned in your comment, only studies in populations of older (60+) adults with two or more co-existing diseases are included. In the original version of the manuscript, wording may have been less helpful in explaining that, although some studies were focused on a single disease, they all included populations with multi-morbidity which we had as an inclusion criteria. In response to your helpful questions, we have defined multi-morbidity in the Introduction (please see page 4), edited the wording of eligibility criteria in the Methods section slightly (please see page 5), and edited column five in Table 1 to include details as to types of diseases in the populations of all the 12 included studies (please see pages 7-8). Furthermore, we have added a brief point related to challenges in defining multi-morbidity across very diverse study types in heterogeneous populations to the discussion of limitations of our systematic review, please see page 15.
The other major change is that 'Patient engagement' is a complex construct that also requires definition in the introduction. This paper is about strategies and systems changes that increase engagement in care, so is not about attendance for care which is also an aspect of engagement. Linked to both of those major points is that the search strategy for this SR would have been complex and really influenced the papers retrieved. To ensure this is rigorously reported and reproducible work by others include the actual search strategy, rather than the keywords.	We agree that the core concept relating to person-centered care based on systematic engagement of patients is complex and multi-facetted with a range of terms used for describing care trajectories in which engagement is key. To clarify our approach, we have, as kindly suggested, added a more precise definition of the construct in the Introduction, please see page 4. Thank you for raising this important point. We have added the search strategy to the revised version of Appendix 1.
The reader would also find it helpful if the authors could summarise in the discussion their conclusions on the elements of the strategies and systems changes that are reflected in the evidence they have pulled together. Are there common themes in what they found or are they too disparate and low evidence to be of use at this point. This is of more use to health service planners and clinicians who may be thinking about	We fully agree with the need for more tangible recommendations targeted towards health service planners and clinicians. However, after conducting a new search, we still believe that the evidence base is too diverse for us to make clear recommendations for practice.

service/system change in the here and now.	
I am not an SR methods expert- but also reflected on whether it is somewhat disingenuous to give a total population number when really this is a synthesis of disparate populations and interventions.	We fully agree that this way of presenting the population is not meaningful considering the huge diversity in populations and interventions. We have deleted the sentence and changed the following sentence slightly, please see page 9.
More minor comments: line 20 page 4- or 3- (the page numbering does not agree between the footer and the page numbering added) Multi-morbidity in (not at) old age Line 32 p5 suggest replace hospital with health care systems or another phrasing that reflects primary and secondary care settings. line 46 p5 settings- is plural line 33 page 6 specify which Scandinavian languages please in the main text Line 40 page 6 quoting 603 needs clarified as the results then report 746 papers; distinction needs to be clear in the text as well as the flow diagram	 We have corrected this mistake, please see page 3. Thank you. We have edited the sentence accordingly, please see page 5. This mistake has been corrected, please see page 5. We have specified this sentence in terms of languages included (Danish, Swedish and Norwegian), please see page 5. We have edited the description based on the updated searches and subsequent in- and exclusion process, please see page 6.

VERSION 2 – REVIEW

REVIEWER	Neuner-Jehle, Stefan Institute of Primary Care, University of Zurich, University Hospital of Zurich
REVIEW RETURNED	14-Sep-2021

GENERAL COMMENTS	Thank you for taking up all my inputs, you managed to answer them to my full satisfaction.

REVIEWER	Williamson, Andrea University of Glasgow, GPPC, School of Medicine, Dentistry and Nursing, MVLS
REVIEW RETURNED	14-Sep-2021

GENERAL COMMENTS	Thank you for addressing my concerns and taking up my suggestions from the initial review of your manuscript. I have some very minor grammatical suggestions and one content suggested change only now: P5 l 33 states hospital- I think this should say health care system. P5 l 42 ' the effect of interventions' remove 'the' P5 l 45 'this rather than 'the systematic review' P5 l48 use the plural for 'health care setting' p5 l 50 change 'for providing' to 'to provide'

	p6 l 8 I would suggest stating when you conducted the inital search and that this was updated in Aug 21, important to be transparent (and it demonstrates high rigour) p11 l 9 should say 'a primary care setting' p11 l 13, remove etc please p16 l17 'conclusion' should be plural

VERSION 2 – AUTHOR RESPONSE

Feedback from Reviewer 1	**Our response/revisions**
Thank you for taking up all my inputs, you managed to answer them to my full satisfaction.	Thank you very much for your positive appraisal of our manuscript.
Feedback from Reviewer 2	**Our response/revisions**
Thank you for addressing my concerns and taking up my suggestions from the initial review of your manuscript. I have some very minor grammatical suggestions and one content suggested change only now.	Thank you so much for your helpful feedback.
P5 l 33 states hospital- I think this should say health care system.	We agree. The sentence has been edited accordingly.
P5 l 42 ' the effect of interventions' remove 'the'.	Changed accordingly.
P5 l 45 'this rather than 'the systematic review'.	Changed accordingly.
P5 l48 use the plural for 'health care setting'.	Changed accordingly.
p5 l 50 change 'for providing' to 'to provide'.	Changed accordingly.
p6 l 8 I would suggest stating when you conducted the inital search and that this was updated in Aug 21, important to be transparent (and it demonstrates high rigour).	We agree. This information has been added to the Methods section.
p11 l 9 should say 'a primary care setting'.	Changed accordingly.
p11 l 13, remove etc please.	Changed accordingly.
p16 l17 'conclusion' should be plural	Changed accordingly.