PEER REVIEW HISTORY

BMJ Open publishes all reviews undertaken for accepted manuscripts. Reviewers are asked to complete a checklist review form (**http://bmjopen.bmj.com/site/about/resources/checklist.pdf**) and are provided with free text boxes to elaborate on their assessment. These free text comments are reproduced below.

ARTICLE DETAILS

TITLE (PROVISIONAL)	Health-Related Preferences of Older Patients with Multimorbidity: the protocol for an Evidence Map.
AUTHORS	GONZALEZ, ANA; Schmucker, Christine; Blom, Jeanet; van den Akker, Marjan; Nguyen, Truc; Nothacker, Julia; Meerpohl, Joerg; Röttger, Kristian; Wegwarth, Odette; Hoffmann, Tammy; Straus, Sharon; Gerlach, Ferdinand; Muth, Christiane

VERSION 1 – REVIEW

REVIEWER	JANICE CHRISTIE University of Manchester United Kingdom
REVIEW RETURNED	09-Mar-2019

GENERAL COMMENTS	Thank you for your submission, it was good to see that you have planned an evidence map regarding the preferences of older people as this should make a good contribution to the literature and support joint clinical decision making. I hope that the following review will support your ongoing work: Title- this is clear and informative Abstract- the background sentences could be clearer as to why 'older people' are being considered. Methods sections of abstract- will any language restrictions be applied? What is the planned date for the evidence mapping to start and finish? Strengths and limitations- it would be helpful to first present the potential pros and cons of an EM in this area (what it will add/not add to knowledge) Introduction, p7 line 117 end of sentence needs a reference. Line 126 'other preferences' sentence is not clear… what type of preferences is being considered? Who needs to develop 'preferences from scratch' and why do 'preferences need to be developed from scratch'? First sentence on p8 needs referenced. P8 line 142 content about 'what EB is' needs to the end of this paragraph should be moved to the methods section (where it needs to be merged with the content of the first paragraph that starts on line 158). Methods and analysis- line 168 has a small typo (Briggs), p10 line 184/final sentence of paragraph needs a slight rephrase ..'in the current'. What are the planned date for the evidence mapping to start and finish? Line 189 'CINAHL' not 'CINHAL'. Line 191, comma missing between OVID and Cochrane (EMBASE isn't available on the Cochrane Database). Line 192- 'reference lists'

	(rather than 'references)? Inclusion/exclusion criteria, will any language limitations be applied? Line 218 could 'content analysis' be defined and referenced, please? Line 227- how much detail on methodology needs to be missing before a study will be excluded? Line 236- what is the contingency plan should 80% agreement not be reached? Why will 'inclusion/exclusion' criteria be reviewed and refined post protocol publication- and if this was done, what would you do to highlight the changes as per good practice? Section 4, charting the data- will they type of study design/methodology be charted? P275- please give more detail/explain the significance of the patients being from the Federal Joint Committee- what is this committee and why was only one PPI person involved, how does this person relate to the study aim (where they an older person with MM? for example). Table 1- please clarify: language- is this the language of the reviewed study participants or the language in which the paper was written? Please define what 'intervention studies of limited availablity' means and how this would relate to preferences (i.e. do you mean preferences for an intervention which is….?) Additional file 2, - please add some text to clarify that this is a Multilanguage search. line 4- 'agedly' was 'aged' meant (apologies if this is as intended)?

REVIEWER	Efrat Shadmi University of Haifa, Israel
REVIEW RETURNED	27-Mar-2019

GENERAL COMMENTS	The authors describe their protocol for performing an Evidence Map of literature on Health-Related Preferences of Older Patients with Multimorbidity. While the proposed study is of relevance and importance to current research on multimorbidity, there are several major concerns that should be addressed: Major comments: 1. The described process will entail determination of the "research question" (p9 line 171 onwards) – as this is quite a broad approach the value in publishing a "protocol" that describes it should be more clearly defined. 2. The authors indicate that: "We will check references of relevant articles and perform cite reference research (forward citation tracking) based on the 10 most relevant studies found in our initial search" – it is not clear how the 10 "most relevant studies" will be identified and why look for references only in the 10 most "relevant" studies? 3. The authors report that they will: " develop the final search strategy in collaboration with an expert medical sciences librarian" – thus, it is not clear why publish this paper as a protocol now and not after finalizing the search strategy. The definition of multimorbidity which this proposed study is based on is not clear – "two or more simultaneous acute or chronic conditions" – while multimorbidity is indeed not limited to chronic conditions, the decision to potentially include studies that include patients with 2 or more acute conditions in the same type of assessment process as studies on people with 2 or more chronic conditions is not clear. Also, how was age 60 selected? This is not a clear "cut point" for

	the multimorbidity research (which is mostly focused on older adults or all adults) 4. The proposed outcomes are not clear – what are: "health-related preferences relating to the organization of healthcare"? are these health related or healthcare related preferences? 5. In regards to the literature search – much of the literature is quite old and more relevant papers, especially some of those directly related to the research topic should be considered (for example: " Bayliss EA, et al; Understanding the context of health for persons with multiple chronic conditions: moving from what is the matter to what matters; Ann Fam Med. 2014 May-Jun;12(3):260-9"; Processes of care desired by elderly patients with multimorbidities. Bayliss EA, Edwards AE, Steiner JF, Main DS. Fam Pract. 2008 Aug;25(4):287-93")

REVIEWER	Dr. Ferrán Catalá-López National School of Public Health, Institute of Health Carlos III, Madrid
REVIEW RETURNED	10-May-2019

GENERAL COMMENTS	This paper describes a study protocol for an evidence mapping that will explore health-related preferences of older patients with multimorbidity. I was asked for an open peer review report and I interpret that to include all aspects of the design and conducting of the research process. Comments: The manuscript is interesting and the planned methods are well reported. Overall, the justification is clearly argued and convincing. There are no major flaws in the methods that would prevent a sound interpretation of the data.

VERSION 1 – AUTHOR RESPONSE

Revisions (R) made according to BMJ Open reviewer's report (Janice Christie, Reviewer 1) by queries (Q):

Q1 Thank you for your submission, it was good to see that you have planned an evidence map regarding the preferences of older people as this should make a good contribution to the literature and support joint clinical decision making. I hope that the following review will support your ongoing work: Title- this is clear and informative.

R1 We would like to thank Reviewer 1 for the positive comments and for reading our manuscript so thoroughly. We have edited the article in accordance with the reviewer's comments and believe it has significantly improved as a result.

Q2 Abstract- the background sentences could be clearer as to why 'older people' are being considered.

R2 We have changed the abstract accordingly:

- Abstract – Background (now lines 69-71): "However, the preferences of older multimorbid patients, who are especially vulnerable and frequently multimorbid, have not been systematically investigated with regard to their health status."

Q3 Methods sections of abstract- will any language restrictions be applied?

R3 We have added the following sentence:

- Abstract – Method (now lines 82-83): “There will be no restrictions on the language on the publication language.”

Q4 What is the planned date for the evidence mapping to start and finish?

R4 We have added the missing information to the methods section of the main manuscript and it now reads:

- Methods and analysis (p 14, now line 464): “The present study started on February 1st 2018 and is scheduled to end on October 31st 2019.”

Q5 Strengths and limitations- it would be helpful to first present the potential pros and cons of an EM in this area (what it will add/not add to knowledge)

R5 We would like to thank Reviewer 1 for this suggestion which we believe will improve our study. In accordance with the reviewer’s comment and the journal’s requirements, we have changed the strengths and limitations section as follows:

- Strengths and limitations of this study (lines 107-117):
  - “Strengths of the study include, first, the considerable expertise, methodological experience and skills that result from having a multinational and multidisciplinary study team that also includes a patient’s representative.”
  - Furthermore, a patient’s representative will be involved in designing the study to ensure that from the beginning, patient-relevant questions are defined, and results discussed accordingly. ”
  - “Second, the search will also be broad-based, use a sensitive rather than a specific strategy, and cover a wide range of databases, terms and search strategies (e.g. forward citation tracking).”
  - “Third In addition, selection criteria will be broad (i.e. both qualitative and quantitative studies will be considered) and no restrictions will be placed on setting or language of publication.”
  - “The main study limitation is poor indexing of articles and the lack of, or non-standardized definition of,, a research topic ‘patient preferences’ (e.g., expressed as satisfaction, experience or perspectives).”
  - “The planned evidence map is expected to help researchers identify clusters and gaps in evidence on preferences of older patients with multimorbidity”.

Q6 Introduction, p7 line 117 end of sentence needs a reference.

R6 We have added the following references accordingly.

- Introduction (p7, now lines 150-153): “Multimorbidity can be associated with overwhelming management burden, which makes it necessary for physicians and patients to prioritise treatment plans by considering both the reduction of symptoms and the patients’ quality of life (16,17).”

16. Kastner M, Hayden L, Wong G, Lai Y, Makarski J, Treister V, et al. Underlying mechanisms of complex interventions addressing the care of older adults with multimorbidity: a realist review. BMJ Open. 2019 Apr;9(4):e025009.

17. Kastner M, Cardoso R, Lai Y, Treister V, Hamid JS, Hayden L, et al. Effectiveness of interventions for managing multiple high-burden chronic diseases in older adults: a systematic review and meta-analysis. Can Med Assoc J 2018 . 190(34):E1004–12.

Q7 Line 126 ‘other preferences’ sentence is not clear… what type of preferences is being considered? Who needs to develop ‘preferences from scratch’ and why do ‘preferences need to be developed from scratch’?

R7 We would like to thank the reviewer for requesting clarification. We have rephrased the paragraph as follows:

- Introduction (p7, now lines 161-187): “Some Certain preferences, such as the avoidance of pain, are well-established stable and well articulated by patients, and the patient is fully aware of them. Other However, most preferences relating to the medical decision-making process have to be broken down into their individual components, as the patient is often not familiar with them. For example, the potential benefits and harms of a new drug treatment have to be taken into consideration and weighed against each other across diseases and treatments, especially in older patients with multimorbidity. The elucidation and construction of preferences is a complex process that several disciplines have investigated from different perspectives (20–23).”

Q8 First sentence on p8 needs referenced.
R8 We have added the reference.

- Introduction (now p8, now lines 188-189): “Healthcare decision-making in multimorbidity requires that health problems are prioritised in terms of desired vs. undesired outcomes - a situation that patients often have no experience with (24)”

24. Hansen H, Pohontsch N, Bussche H Van Den, Scherer M, Schäfer I. Reasons for disagreement regarding illnesses between older patients with multimorbidity and their GPs – a qualitative study. BMC Fam Pract. 2015;16:68.

Q9 P8 line 142 content about ‘what EB is’ needs to the end of this paragraph should be moved to the methods section (where it needs to be merged with the content of the first paragraph that starts on line 158).
R9 We would like to thank Reviewer 1 – we appreciate this recommendation and have deleted the paragraph from the introduction section and added it to the methods section.

- Introduction (p8, old lines 142-149): “Evidence mapping is an innovative method of synthesising evidence when the research question is too broad to perform a “traditional” systematic review. Both evidence maps (EM) and scoping reviews have recently been recommended by the Agency for Healthcare Research and Quality (AHRQ)’s Evidence-based Practice Center program (22) as a first step towards systematically mapping existing research that can help answer broad-based questions. The two emerging methods differ in the way they present their results: scoping reviews present a narrative description of results, whereas evidence maps use visual formats (e.g. bubble plots) (23).”
- Methods and analysis (now p 9, lines 237-242): “Evidence mapping is an innovative method of synthesising evidence that is particularly useful when the research question is too broad to permit a “traditional” systematic review to be performed. Evidence maps have recently been recommended by the Agency for Healthcare Research and Quality (AHRQ)’s Evidence-based Practice Center program (28) as a first step towards systematically mapping existing research (clusters and gaps in evidence) that can help answer broad-based questions. They usually use visual formats (e.g. bubble plots) to analyse and present results (29).”

Q10 Methods and analysis- line 168 has a small typo (Briggs),
R10 We have corrected the typing error.

- Methods and analysis (now p9, now line 253): “and further developed by the Joanna Briggs Institute”

Q11 p10 line 184/final sentence of paragraph needs a slight rephrase ..’in the current’.
R11 We have clarified the research question.

- Methods and analysis (p10, now lines 286-289): “What specific health-related preferences of older patients with multimorbidity are described in the available current literature?”

Q12 What are the planned date for the evidence mapping to start and finish?
R12 We have added this information (see also R4).

- Methods and analysis (now line 465): “The present study started on February 1st 2018 and will end on October 31st 2019.”

Q13 Line 189 ‘CINAHL’ not ‘CINHAL’. Line 191, comma missing between OVID and Cochrane (EMBASE isn’t available on the Cochrane Database). Line 192- ‘reference lists’ (rather than ‘references)?
R13 We have corrected the typing errors:

- Methods and analysis (now p10, now line 293): “CINHAHL (1981 to 2018),”
- Method (now p10, line 295): “EMBASE (1988 to 2018) via Ovid, and Cochrane Database (CENTRAL, TRIALS)”
- Method (now p10, now line 296): “We will check the reference lists of relevant articles”

Q14 Inclusion/exclusion criteria, will any language limitations be applied?
R14 We do not plan to apply any language restriction.

- Methods and analysis (now p11, lines 376-377): “We will not apply any restriction to the geographical location of the study or the language of publication,…”

Q15 Line 218 could ‘content analysis’ be defined and referenced, please?
R15 We have now clarified and properly referenced the text:

- Methods and analysis (now p13, now lines 437-443): “Clustering of research topics will be performed by applying content analysis (36,37) to summarise the types of preference described in the study. bBased on coding by two independent reviewers (AIG, JN or CS), overarching themes will be identified and aggregated. For this purpose, tThe results will be entered into the data extraction file, which will then be reviewed by the other researchers (CM, JB, MvA, TH and SS). Categories for the analysis of the obtained data will be modified accordingly, along with the development of the evidence map, and agreed upon after consultation with the research team.”

Q16 Line 227- how much detail on methodology needs to be missing before a study will be excluded?
R16 We have changed the methods section and table 1 to clarify inclusion and exclusion criteria.

- Methods and analysis (p11, line 382): “We will exclude case reports, narrative reviews and editorials, and articles without details on methodology.”
- Table 1 (p19, line 610):
  - Articles providing no details on methodology

Q17 Line 236- what is the contingency plan should 80% agreement not be reached?
R17 We have explained the consequences in more detail as follows:

- Methods and analysis (p12, now lines 402-405): “Before screening, a stepwise calibration exercise will be performed on a sample of 50 studies, with the aim of achieving 80% agreement between the two reviewers. In case 80% agreement is not reached, our inclusion and exclusion criteria will be refined to reach this cut-off (e.g. defined more stringently). Refined criteria will be calibrated on a new sample of 50 studies and repeated until this threshold is reached. Inclusion and exclusion criteria will be reviewed and refined as necessary during the calibration period.”

Q18 Why will ‘inclusion/exclusion’ criteria be reviewed and refined post protocol publication- and if this was done, what would you do to highlight the changes as per good practice?
R18 We would like to apologize for this misunderstanding. We will refine our inclusion/exclusion criteria (i.e. provide clearer definitions) only subsequent to the calibration period. We will perform the calibration with the aim of achieving high agreement between reviewers during the screening process. We will report any refinement of the inclusion and exclusion criteria as results of the calibration period, and we will announce them as deviations from the planned protocol. We have made the following changes to the methods section:

- Methods and analysis (p12, now lines 405-406): “Inclusion and exclusion criteria will be reviewed and refined as necessary during the calibration period.We will report any changes to the inclusion and exclusion criteria that result from the calibration exercise as deviations from the published protocol.”

Q19 Section 4, charting the data- will they type of study design/methodology be charted?
R19 We previously specified the reporting of data extraction:

- Methods and analysis (now p12, now lines 408-409): “Data extraction tables will be created using Excel and will include, when available: study characteristics such as research type (study design / methodology) and setting”

Q20 P275- please give more detail/explain the significance of the patients being from the Federal Joint Committee- what is this committee and why was only one PPI person involved, how does this person relate to the study aim (where they an older person with MM? for example).
R20 We have added more information on the patient representative in our study.

- Methods and analysis (now p14, lines 467-474): A patient representative (KR) from the Federal Joint Committee “Gemeinsamer Bundesausschuss (G-BA)“ will actively participate in all the six steps required to create the evidence map. As a result of his work on the G-BA board of patients’ representatives, KR has considerable expertise in evidence-based medicine in a health care context, and an understanding of the pivotal role of patients’ preferences in the provision of effective health care. The G-BA constitutes the highest decision-making body for the joint self-administration of stakeholders in the German health service, and the statutory health insurance service catalogue for over 70 million insured individuals is based on its guidelines.”

Q21 Table 1- please clarify: language- is this the language of the reviewed study participants or the language in which the paper was written?
R21 We have clarified Table 1 accordingly:

- Table 1 (now p20, line 610): “No restrictions: We will not apply any restrictions with respect to the geographical location, health care context, country, and publication language of the study.”

Q22 Please define what ‘intervention studies of limited availablity’ means and how this would relate to preferences (i.e. do you mean preferences for an intervention which is….?)
R22 We have specified our reporting:

- Methods and analysis (now p11-12, now lines 382-394): “We will leave out studies investigating preferences for or against interventions of limited availability or whose legal status is unclear (e.g. euthanasia, which is neither legal nor available in most Western countries).”
- Table 1 (p20, line 610): “Studies investigating preferences for or against interventions that are not generally available, or only legal in limited contexts Interventional studies of limited availability, or whose legal status is unclear (e.g. euthanasia)”

Q23 Additional file 2, - please add some text to clarify that this is a Multilanguage search.
R23 Multilanguage search means that we will not exclude any articles based on published language, i.e. no language restrictions will be applied.
Q24 line 4- ‘agedly’ was ‘aged’ meant (apologies if this is as intended)?
R24 We have checked and found that ‘agedly’ is correct, it is part of the search term for “older people”.
Revisions (R) made according to BMJ Open reviewer's report (Efrat Shadmi, Reviewer 2) by queries (Q):
Q25 The authors describe their protocol for performing an Evidence Map of literature on Health-Related Preferences of Older Patients with Multimorbidity. While the proposed study is of relevance and importance to current research on multimorbidity, there are several major concerns that should be addressed:
R25 We would like to thank Reviewer 2 for the encouragement and the well-informed, pertinent comments.
Q26 The described process will entail determination of the "research question" (p9 line 171 onwards) – as this is quite a broad approach the value in publishing a "protocol" that describes it should be more clearly defined.
R26 As we aim to explore all health-related preferences of older patients with multimorbidity – which is indeed a broad research question – we decided in favour of evidence mapping. Evidence mapping (sometimes the term scoping review or scoping exercise are used interchangeably) supports the ‘cartography’ of evidence, i.e. it aims to identify clusters and gaps in evidence (28, 29) As this is still an emerging method, we have explained it in more detail in our methods section.

- Methods and analysis (now p 9, now lines 237-242): “Evidence mapping is an innovative method of synthesising evidence that is particularly useful when the research question is too broad to permit a “traditional” systematic review to be performed. Evidence maps have recently been recommended by the Agency for Healthcare Research and Quality (AHRQ)’s Evidence-based Practice Center program (28) as a first step towards systematically mapping existing research (clusters and gaps in evidence) that can help answer broad-based questions. They usually use visual formats (e.g. bubble plots) to analyse and present results (29).”

28. Chang S. Scoping Reviews and Systematic Reviews: Is It an Either/Or Question? Ann Intern Med [Internet]. 2018;169(7):502.
29. Schmucker C, Motschall E, Antes G, Meerpohl J. Methoden des Evidence Mappings. Bundesgesundheitsblatt - Gesundheitsforsch - Gesundheitsschutz [Internet]. 2013 Oct 28;56(10):1390–7.
Q27 The authors indicate that: "We will check references of relevant articles and perform cite reference research (forward citation tracking) based on the 10 most relevant studies found in our initial search" – it is not clear how the 10 "most relevant studies" will be identified and why look for references only in the 10 most "relevant" studies?

R27 We are particular grateful for this comment, as it will improve both the methodology of the study and our reporting. We have modified our protocol as follows:

- Methods and analysis (p10, now lines 296-298): “We will check the reference lists of included articles (backward citation tracking) and carry out forward citation tracking using the Web of Science Core Collection and Google Scholar. Additionally, we will search for related articles in Pubmed. and perform reference research (forward citation tracking) based on the 10 most relevant studies found in our initial search (e.g., if keywords provided by the author contained the terms “multimorbidity” and “patient preferences” and/ or described a specific method for eliciting patients’ preferences, such as conjoint analysis).”

Q28 The authors report that they will: " develop the final search strategy in collaboration with an expert medical sciences librarian" – thus, it is not clear why publish this paper as a protocol now and not after finalizing the search strategy.

R28 We have finalized our search strategy and changed the manuscript accordingly:

- Methods and analysis (p 10, now lines 303-304): “We will followed the recommendations of PRESS Peer Review of Electronic Search Strategies and developed the final search strategy in collaboration with an expert medical sciences librarian (35).

Q29 The definition of multimorbidity which this proposed study is based on is not clear – "two or more simultaneous acute or chronic conditions" – while multimorbidity is indeed not limited to chronic conditions, the decision to potentially include studies that include patients with 2 or more acute conditions in the same type of assessment process as studies on people with 2 or more chronic conditions is not clear.

R29 We based our study on the systematically developed definition of multimorbidity developed by van den Akker (1). This definition includes acute diseases and conditions. We are aware that there is a risk of including studies that involve the self-management of a combination of self-limiting diseases. However, based on our pilot evidence map, we consider it to be extremely unlikely. .

1. van den Akker M, Buntinx F, Knottnerus JA. Comorbidity or multimorbidity. Eur J Gen Pract [Internet]. 1996 Jan 11;2(2):65–70.

Q30 Also, how was age 60 selected? This is not a clear "cut point" for the multimorbidity research (which is mostly focused on older adults or all adults).

R30 Unfortunately, there is no biomedical reason to define an age threshold in multimorbidity given the fact that multimorbidity occurs at all ages (1,2). The often used cut-off of 65+ years is mainly based on expert opinions of potentially inappropriate medication due to pharmacokinetics changes in older age, such as those described in the Beers’ list (3) and its numerous adaptations. However, the prevalence of multimorbidity rises at earlier ages, which encouraged us to employ the 60+ ‘cut-off’ – that we used in our PRIMUM study (4), and that is also used by the United Nations (https://www.un.org/en/sections/issues-depth/ageing/) and World Health Organization (https://www.who.int/news-room/fact-sheets/detail/ageing-and-health).

1. Fortin M, Bravo G, Hudon C, Vanasse A, Lapointe L. Prevalence of multimorbidity among adults seen in family practice. Ann Fam Med. 2005;3(3):223–8.
2. Barnett K, Mercer SW, Norbury M, Watt G, Wyke S, Guthrie B. Epidemiology of multimorbidity and implications for health care, research, and medical education: A cross-sectional study. Lancet. 2012;380(9836):37–43.
3. Beers MH. Explicit criteria for determining potentially inappropriate medication use by the elderly. An update. Arch Intern Med. 1997 Jul 28;157(14):1531–6.
4. Muth C, Uhlmann L, Haefeli WE, Rochon J, van den Akker M, Perera R, et al. Effectiveness of a complex intervention on Prioritising Multimedication in Multimorbidity (PRIMUM) in primary care: results of a pragmatic cluster randomised controlled trial. BMJ Open [Internet]. 2018;8(2):e017740. Available from: http://www.ncbi.nlm.nih.gov/pubmed/29478012

Q31 The proposed outcomes are not clear – what are: "health-related preferences relating to the organization of healthcare"? are these health related or healthcare related preferences?

R31 We have corrected our language error:

• Methods and analysis (now p11, now lines 368-369): “Our phenomena of interest (outcomes) will be (i) health-related preferences relateding to the organisation of health-care;”
Q32 In regards to the literature search – much of the literature is quite old and more relevant papers, especially some of those directly related to the research topic should be considered (for example: " Bayliss EA, et al; Understanding the context of health for persons with multiple chronic conditions: moving from what is the matter to what matters; Ann Fam Med. 2014 May-Jun;12(3):260-9"; Processes of care desired by elderly patients with multimorbidities. Bayliss EA, Edwards AE, Steiner JF, Main DS. Fam Pract. 2008 Aug;25(4):287-93")
R32 We have updated the references listed in the introduction section to include the important citations provided by Reviewer 2 and we have added references 7, 10, 16, 17:
7. Marengoni A, Angleman S, Melis R, Mangialasche F, Karp A, Garmen A, et al. Aging with multimorbidity: A systematic review of the literature. Ageing Res Rev [Internet]. 2011 Sep;10(4):430–9.
10. Bayliss EA, Edwards AE, Steiner JF, Main DS. Processes of care desired by elderly patients with multimorbidities. Fam Pract. 2008;25(4):287–93.
16. Kastner M, Hayden L, Wong G, Lai Y, Makarski J, Treister V, et al. Underlying mechanisms of complex interventions addressing the care of older adults with multimorbidity: a realist review. BMJ Open. 2019 Apr;9(4):e025009.
17. Kastner M, Cardoso R, Lai Y, Treister V, Hamid JS, Hayden L, et al. Effectiveness of interventions for managing multiple high-burden chronic diseases in older adults: a systematic review and meta-analysis. Can Med Assoc J [Internet]. 2018 Aug 27;190(34):E1004–12.
24. Hansen H, Pohontsch N, Bussche H Van Den, Scherer M, Schäfer I. Reasons for disagreement regarding illnesses between older patients with multimorbidity and their GPs – a qualitative study. BMC Fam Pract. 2015;16:68.

Revisions (R) made according to BMJ Open reviewer's report (Dr. Ferrán Catalá-López, Reviewer 3) by queries (Q):
Q33 The manuscript is interesting and the planned methods are well reported. Overall, the justification is clearly argued and convincing. There are no major flaws in the methods that would prevent a sound interpretation of the data.
R33 We would like to thank Reviewer 3 for the positive comments.

Editorial requests

Q34 Please spell out multimorbidity rather than using the acronym MM throughout the manuscript.
R34 We have spelled out multimorbidity throught the manuscript.

Q35 Please include the planned start and end dates of the study in the methods section.
R35 Start and end dates have been added at the end of the methods section.

VERSION 2 – REVIEW

REVIEWER	Efrat Shadmi University of Haifa, Israel
REVIEW RETURNED	27-Jul-2019

GENERAL COMMENTS	I have reviewed all corrections and comments and I fully accept all authors' responses.