PEER REVIEW HISTORY

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ARTICLE DETAILS

TITLE (PROVISIONAL)	Delineating the concept of self-management in chronic conditions: a concept analysis
AUTHORS	Van de Velde, Dominique; De Zutter, Freya; Satink, Ton; Costa, Ursula; Janquaert, Sara; Senn, Daniela; De Vriendt, Patricia

VERSION 1 - REVIEW

REVIEWER	Sophie Lewis UNSW Sydney Australia
REVIEW RETURNED	17-Dec-2018

GENERAL COMMENTS	The aim of this paper, to unpack the concept of self-management and develop a more concrete conceptualisation, does address an important research gap and has the potential to provide original insights into the concept of self-management. There are however, a number of issues that should be addressed before I can recommend this article for publication. My main concern is with the overall readability and integration of ideas throughout. I found the reporting of the results disjointed and not integrated fully with the introduction, methods and discussion. This meant that the paper lacked focus and clarity of overall argument. Introduction: The introduction would benefit from more focus on self-management and how the concept of self-management fits within broader definitions of health. The first section focuses more on health and it was unclear how this fitted with the main argument of the paper which was around clarification of the concept of self-management. There are also some assumptions made, for example, about what an 'activated' patient is. Careful attention to language and avoiding the presentation of ideas and arguments as 'facts' would be beneficial. Clarity around the links between self-management and chronic conditions would also be useful. Methods: The majority of the methods is spent reporting the steps involved in conducting a concept analysis. In this section it would be useful to see more clarity and details around the selection of search terms and the search strategy, the inclusion and exclusion criteria and the process of excluding articles, and number excluded. Clarity around how saturation was reached and what this meant in this context would be useful. Results: The presentation of findings is hard to follow at times (see in particular Step 7: antecedents and consequences (and the

	introduction of self effiicacy) and step 8: empirical referents (p. 16-19). I wonder if the authors might consider if there is a better way to structure the findings that integrates the findings better with the introduction, method and discussion sections. Discussion: The discussion covers a range of different issues related to self-management, it's definitions, measurability and consequences for self-management interventions. Here, again I think the discussion could be strengthened by a stronger and more central focus on the aims of the study, the contribution of this research, and where it fits within the broader literature on self-management.

REVIEWER	Oladapo Ogunbayo Institute of Health and Society, Newcastle University, United Kingdom
REVIEW RETURNED	17-Dec-2018

GENERAL COMMENTS	Self-management is a topical issue that is very relevant to many modern health systems in terms of its potential for improving health outcomes and reducing costs. While there are many divided opinions and ambiguity on how self-management is conceptualised and operationalised, the authors of this manuscript provided an attempt at addressing these ambiguities. There are however a number of major concerns about how the article has been written in its current state; - The most serious concern about the manuscript is in the results section, where there are more questions raised to the reader, rather than the needed clarity of the concept of self-management. o In step 4 (from page 7, line 27) the attributes of self-management described do not follow a clear and logical pattern which makes it hard for the reader to understand the link between the different attributes. There are also a lot of overlapping and unclear description in many of the attributes, for example, attributes 1 and 3 could be combined; attributes 4, 5 and 8 are not sufficiently described to provide any new knowledge; attribute 9 appear very distinct and unrelated to the rest of the attributes. o Steps 5 and 6 needs a bit more unpacking; for example, do the authors mean that the model case is an example of a 'good' self-manager? If so, what does this mean in healthcare practice? o Furthermore, clustering of the results of steps 1 to 3 does not sufficiently provide the reader with confidence about how the data provided was arrived at. A more detailed summary, e.g. using a table, of the 35 articles included (Page 7, line 8) would be useful to the reader to get a sense of the breadth of the literature used. - The methods section described also raises a lot of 'how' questions and does not give the reader the impression that rigour has been built into the concept analysis process described in each of the different steps. - The introduction section would also benefit from a bit more focus, for example, the point about the change towards a more dynamic definition of 'health' is noted, but this deviates from the focus of untangling the concept of self-management. In addition, it would be useful for the reader to get a sense of the authors' delineation of self-management and other related terms and concepts such as 'self-care' and 'self-management support'.

VERSION 1 – AUTHOR RESPONSE

Comments of the reviewer 1	Response	Changes in the manuscript
My main concern is with the overall readability and integration of ideas throughout. I found the reporting of the results disjointed and not integrated fully with the introduction, methods and discussion. This meant that the paper lacked focus and clarity of overall argument.	Thank you for this comment. We have re-written the manuscript to make sure that there is more integration between the intro, method and discussion. The changes in the manuscript are described in the subsequent columns and rows.	See changes in the subsequent rows of this table.
The first section focuses more on health and it was unclear how this fitted with the main argument of the paper which was around clarification of the concept of self-management.	We agree with this comment. Our first intention was to start on the changing health paradigm and then put the focus on the importance of self-management. We shortened the introduction towards health and only use this as a means to get to the reason why self-management has become an important key concept in the health care delivery.	The aspect of health has been shortened and has just been used to introduce the need to focus on self-management The following rationale has been built up in the introduction. - Short intro on how self-management in increasingly advocated in reasoning about health and health care delivery. - Argumentation that self-management in primarily important in chronic conditions and multimorbidity - Short overview of the evidence of the self-management programmes - The discourse about the ambiguity of the concept based on randomized controlled trials and . - The need to find common ground on the concept. Irrelevant items that hinder the readability of the introduction have been removed: The following two aspects have been totally removed: As a consequence of growing evidence, it can be agreed that there are indeed arguments in favour of changing

		towards a more dynamic definition of health in which self-management is a key concept. An argument that is often made is that the current, static definition of health as “a complete state of health” cannot be measured and therefore cannot be considered fully operational. However, this same argument – the inability to measure – can also be applied to the newly proposed dynamic definitions of health. When it comes to self-management, is it possible to measure the level in a reliable and valid way?
There are also some assumptions made, for example, about what an 'activated' patient is. Careful attention to language and avoiding the presentation of ideas and arguments as 'facts' would be beneficial.	We agree with that comment. However, we referred to authors who shared their ideas? These ideas are not our own. Notwithstanding, we have tried to avoid presentation of ideas and have built the rationale based on facts.	The paragraph where the ideas were presented has been changed into: Based on the results of a systematic review by Panagioti and colleagues, it is shown that interventions directed towards self-management significantly improve health outcomes and results in a reduction in healthcare utilization in association with decrements in health [10] As a consequence of growing evidence, it can be agreed that there are indeed arguments in favour of changing towards a more dynamic definition of health in which self-management is a key concept.
Clarity around the links between self-management and chronic conditions would also be useful.	We agree with that and have added a short sentence to make that link.	Changes in the manuscript: The following lines have been added: The main argument for this transition is because of the demographic and epidemiological evolution characterised by an increase of non-communicable diseases within the context of multi-morbidity. [2, 3, 4, 5] As a consequence, health care delivery shifts from curing the disease towards empowering patient to self-manage the consequences of their disease(s)[9]. In this regard, interventions for self-management are increasingly implemented in health care delivery. For people with chronic conditions.
Methods: The majority of the methods is spent reporting the steps	We do agree with that aspect and we have added information about	Changes in the manuscript

involved in conducting a concept analysis. In this section it would be useful to see more clarity and details around the selection of search terms and the search strategy, the inclusion and exclusion criteria and the process of excluding articles, and number excluded. Clarity around how saturation was reached and what this meant in this context would be useful.	- Selection and search terms - Clarity how saturation was reached. In addition: - We added a flow chart in the result section showing how we included and excluded the articles.	The following paragraph was removed from the manuscript: To understand how the concept is defined and to identify the attributes, articles in the healthcare literature were used. Articles were considered eligible for inclusion if they: (a) discussed self-management, (b) were healthcare related, (c) were written in English, and (d) had the full-text available. Searches were undertaken in PubMed, Scopus, and Web of Science using the following terms: “self-management”, “management of chronic disease”, and “self-management AND healthcare”. Articles were selected when self-management was mentioned in the title, was a keyword, or was identified as a concept used in the abstract. The process of selecting and including literature continued until no new attributes were found and saturation was reached. And was replaced by a paragraph on the search strategy: The search started by entering the following key-words in Pubmed Scopus, and Web of Science: “self-management” OR “management of chronic disease”, OR “self-management AND healthcare”. A first selection was made and articles with the term self-management in the title or in the keywords were withheld. Articles were included if the article (a) discussed theoretical or conceptual foundations of self-management, (b) were healthcare related, (c) were written in English, and (d) had the full-text available. Articles solely focussing on the application of self-management programmes and self-management interventions without a theoretical support were excluded. Two researchers independently selected the articles based on the above in- and exclusion criteria. And a paragraph about the saturation:

		This process was characterised by the iterative process of adding new knowledge and information until saturation was reached. The process of saturation was characterised by two main features: triangulation of (a) resources and (b) researchers. About the resources: three different databases were used and the references in the selected articles were checked which led to additional articles that we also analysed. Articles including new knowledge were added to the list; articles concerning already-known information were withheld, but only to confirm the already-known information. About the triangulation of the researchers. After the first author, all other researchers in this project were asked to critically read the gathered information and see whether possible published information was missing. When information was missing, the experts were asked to forward articles. Peer debriefing with the entire research group and a final consensus meeting led to an agreement of saturation.
Results: The presentation of findings is hard to follow at times (see in particular Step 7: antecedents and consequences (and the introduction of self-efficacy) and step 8: empirical referents (p. 16-19).	Thank you for this comment. We have discussed how we could structure the findings in a better way. This is however a difficult request since the structure of the theme's is the result of the entire procedure of this method. We however could give more insight in the way these findings have been built by giving an overview in a table of how the attribute were discovered and organised. This shows at the same time the rigour of the analysis (see supplementary material). About the antecedents, step 7 and step 8, we have tried to change the way of writing and be more specific in describing these two findings.	We have changed the description about the antecedents and the consequences: In the method section, we gave an example of an antecedent and a consequence: Step 7: Identify antecedents and consequences Antecedents are events or attributes that must arise prior to a concept's occurrence. For instance, if pain is the concept under investigation, an antecedent could be a fall. The consequences are those events or incidents that can arise as a result of the occurrence. For instance regarding the concept pain, a consequence could be fear of falling. About the antecedents: Antecedents are events or attributes that must arise prior to the occurrence

I wonder if the authors might consider if there is a better way to structure the findings that integrates the findings better with the introduction, method and discussion sections.	We have structured the results them in three groups: persona oriented attributes, person-environment attributes, summarizing attributes.	of self-management. After thorough discussion within the research group, we decided to classify self-efficacy efficacy and health literacy as the two main antecedents. Self-efficacy is an antecedent because it is considered by different authors defined as “one of the possible mechanisms by which self-management can be achieved achieves the previously mentioned outcomes”.[31] In addition, self-efficacy reflects the development of confidence to manage the aspects of the three domains of self-management,[9, 33, 36] to deal dealing with chronic conditions and their consequences[9, 58, 69] and having the confidence that a specific behaviour can be accomplished.[32, 34, 40] A second important antecedent is Health literacy; Mackey et al.70 imply that there is an association between health literacy and self-management skills. Kitt and colleagues follow this premise and argue that a low health literacy implies poorer self-management behaviours and health literacy is therefore considered to be an antecedent of self-management.[51] Furthermore, Perceived health status[57] social support, health beliefs, motivation, and coping are also referred to as antecedents.[47] About the empirical referents. We have removed the text and added a table with an overview of the tools and possible questions from the tool relating to the attribute. The order of the attributes have changed and were clustered in three groups (e.g. of some of the attributes) Please note that the numbers of the attributes follow the new order Group 1 the person oriented attributes - 1 The person must actively take part in the care process.

		- 2 The person must take responsibility for the care process. - … Group 2 the person-environment oriented attributes - … - 6 Self-management entails openness to ensure a reciprocal partnership with healthcare providers. - … Group 3 the summarizing attributes - … - 10 Self-management encompasses three domains: medical, role and emotional. .
Discussion: The discussion covers a range of different issues related to self-management, it's definitions, measurability and consequences for self-management interventions. Here, again I think the discussion could be strengthened by a stronger and more central focus on the aims of the study, the contribution of this research, and where it fits within the broader literature on self-management.	We have changed the discussion section to make sure there is a more coherent story linked to the aim of the study and we have linked it more to the broader literature.	The following aspects have been changed in the discussion section: The rationale of the discussion section is as followed: - Short overview of the aim and the results - The contribution of this study - The relation with the broader literature o Existing evidence in chronic conditions o Self-management programmes and interventions o Health status o healthcare utilization - limitations o about the concept analysis method o about the presentation of the results - final conclusion

Comments of the reviewer 2	Response	Changes in the manuscript

The most serious concern about the manuscript is in the results section, where there are more questions raised to the reader, rather than the needed clarity of the concept of self-management. o In step 4 (from page 7, line 27) the attributes of self-management described do not follow a clear and logical pattern which makes it hard for the reader to understand the link between the different attributes. There are also a lot of overlapping and unclear description in many of the attributes, for example, attributes 1 and 3 could be combined; attributes 4, 5 and 8 are not sufficiently described to provide any new knowledge; attribute 9 appear very distinct and unrelated to the rest of the attributes.	Thank you for this response, we have tried to address this comment in different ways: - With regard to the logical pattern: we have changed the order of the attributes and have clustered them in three groups. - With regard to step 4, the attributes. We have changed the order of the attributes and start now with the fact that the persons should be active, followed by the need to take responsibility. The last attribute (a life time task) was moved and placed before 8 (the SM skills). From this perspective there is a more coherent order in the attributes and we end with the three domains (medical management, emotional management and role management) as some kind of an comprehensive overview. This makes more sense and it provides also an answer why this attribute is distinct from the other attributes (see further) - Indeed there is some overlap 1 and 3, but we have considered that there is a difference between the two. Therefore, we have kept them as two separate attributes. The rationale is that one can be active, but does not take responsibility. - We have added sentences to link them to each other and to provide more clarity.	The order of the attributes have changed and were clustered in three groups (e.g. of some of the attributes) Please note that the numbers of the attributes follow the new order Group 1 the person oriented attributes - 1 The person must actively take part in the care process. - 2 The person must take responsibility for the care process. - … Group 2 the person-environment oriented attributes - … - 6 Self-management entails openness to ensure a reciprocal partnership with healthcare providers. - … Group 3 the summarizing attributes - … - 10 Self-management encompasses three domains: medical, role and emotional. Between the different attributes, there has been added sentences to link them to each other and to provide more clarity. E.g. between 1 (active) and 2 (responsibility): the following lines have been added: This attribute is closely linked to the preceding attribute, but there is a subtle difference. The key message of this attribute is that the patient not only has to be

	- About attribute 4 and 5: we have added some sentences to provide more information. We however would like stress that we did not have the intention to provides new knowledge. This is also not the goal of a concept-analysis. Rather, It is only a stock take of accumulated insights to provide a more comprehensive understanding. - About attribute 8: we had added some additional information and have combined 2 skills into one. - About attribute 9: Indeed, this is distinct from the other attributes. We have discussed this within the team and concluded to leave this attribute in the list, but provide an argument why this is different.	active, but he also must take responsibility for the care, Lorig and Holman31 state that the patient is the only actor within the care process who can be responsible for day-to-day care…. Between 2 (responsibility – previously attribute 1) and 4 (informed – previously attribute 2): A person cannot take responsibility and take action, unless he is correctly informed about his health condition and the possible consequences. Packer[35] highlights that knowledge needs to be underpinned by information, confidence, and support to achieve self-management. Indeed, several authors are convinced of the importance of the attribute… About attribute 3 (adversity – previously attribute 4): we added the following sentence to give some more explanation: Persons with a chronic condition have to deal with emotions such as anger and frustration. Different authors argue that self-management is difficult when a person does not accept the disease and doesn't have a feeling of control about the situation. Omisakin and Ncama[30] describe "self-help" as a way of coping with adversity, which refers to the ability to care for oneself to assure one's own health and wellbeing.[33] Also here we have added some lines to link the attributes to each other: This proposition implies the individual responsibility of the

		person mentioned in relation to Attribute 2 mentioned above. About Attribute 5 (individualized) we added the following sentence to give some more explanation: Differences between persons, on the level of disease, environment and personal features makes that Self-management cannot be undertaken by default. Self-management is ideally based on patients' perceived problems and their personal perceptions of their condition.[31, 55] Therefore, patients should express their needs, values, and priorities.[43] Self-management; it will take shape depending on the individual's abilities.41, [42, 53, 54] It is an individualized and personal concern and it is patient-driven… About attribute 9 (skills – previously attribute 8): the following lines have been added: Five skills recur in multiple articles when it comes to self-management, regardless of the type of condition. These skills are related to the other described attributes, but for reason of completeness they have been described separately. About Attribute 10 (three domains): the following lines have been added to explain why this attribute is distinct: This attribute is somehow distinct from the others because it merges the above described attributes in three different domains in which self-management is relevant. This final attribute has to be considered as a comprehensive overview and shows the different

		layers of self-management. It is not sufficient to focus solely on managing medical aspects (such as the ability to take medication on time), but also to focus on the real life context (e.g. going to the sports club) and to focus on how to deal with emotions
Steps 5 and 6 needs a bit more unpacking; for example, do the authors mean that the model case is an example of a 'good' self-manager? If so, what does this mean in healthcare practice?	Ok we agree with this comment. We have added some information about these two examples	The following line shave been added to the paragraph about the model case: About the model case A model case is a fictive case is which the 10 attributes are apparent and consequently an example of a good self-manager. in addition, some lines have been added to explain what it means in health care practice: e.g 1: Because of the good information offered during the hospital stay, e.g. an explaining of the general issues of his heart problems and healthy lifestyle, and the conversation about David's goals for the next months, he had been able to build an excellent and confident relationship. e.g.2: The specialist as well as other health care providers worked in partnership with David, meaning that they involved him in (personalized) goalsetting, action planning as well as that they had a personalized evaluation with David. Because of the intensive guidance offered during hospitalization, he was able to build an excellent and confident relationship with his specialist. In the program that was offered to David, information about the medical issues and ways to manage these, as well as social issues, (role management) and

		emotional issues were discussed. About the borderline case; the following lines have been added: A border line case is also a fictive case, but a case in which attributes are lacking…. Not all attributes of self-management can be found in this example: (a) a good relationship between the patient and healthcare provider is lacking; (b) despite knowing which agencies can provide him with assistance (i.e. Thomas is informed), the attribute “utilizing resources” is missing; (c) there is too much focus on medical management, with no attention to role- or emotional management. In this case, there is too great a focus on Thomas having a striking self-efficacy mechanism and being highly self-appointed, which is good in achieving certain aspects of self-management, but shifts other attributes to the background. At the end of the entire paragraph: The above described cases shows the complexity of self-management and the possibility to compare a good self-manager from a weak self-manager. When relating this to healthcare practice, these cases can be used as examples to check whether programmes or interventions cover all attributes, and what should be focused on when not all attributes are covered.
Furthermore, clustering of the results of steps 1 to 3 does not sufficiently provide the reader with	We do agree with that remark. We have added some information about the method and we added	Changes in the manuscript: We added a table with the overview of all articles, the order

confidence about how the data provided was arrived at. A more detailed summary, e.g. using a table, of the 35 articles included (Page 7, line 8) would be useful to the reader to get a sense of the breadth of the literature used.	a table with and overview of the included articles	of the articles in the table is based on the different phases of the search strategy and by date. In the result section: we added the following: Screening the titles and the key words of the articles initially yielded 128 articles of which 118 did not meet the in-and exclusion criteria. Ten articles were used as a starting point and based on the triangulation of resources, 23 articles were added to the list and based on triangulation of researchers 2 articles were added. This finally resulted in 35 articles (See table 2, selected articles used for defining the attributes). These articles were used to describe the attributes of self-management and were subdivided into three groups: articles about self-management in general (n=9), articles in which self-management was linked to chronic conditions and diseases (n=13), and articles in which self-management was diagnosis-specific (n=13). The analysis of these 35 articles was grounded on different points of views…
The methods section described also raises a lot of 'how' questions and does not give the reader the impression that rigour has been built into the concept analysis process described in each of the different steps.	Thank you for this comments: we have tried to give more detailed information about the method. For that reason we have changed the paragraph about the method: so	Changes in the manuscript: The following paragraph was removed from the manuscript: To understand how the concept is defined and to identify the attributes, articles in the healthcare literature were used. Articles were considered eligible for inclusion if they: (a) discussed self-management, (b) were healthcare related, (c) were written in English, and (d) had the full-text available. Searches were undertaken in PubMed, Scopus, and Web of Science

		using the following terms: “self-management”, “management of chronic disease”, and “self-management AND healthcare”. Articles were selected when self-management was mentioned in the title, was a keyword, or was identified as a concept used in the abstract. The process of selecting and including literature continued until no new attributes were found and saturation was reached. And was replaced by a paragraph on the search strategy: The search started by entering the following key-words in Pubmed Scopus, and Web of Science: “self-management” OR “management of chronic disease”, OR “self-management AND healthcare”. Articles were included if the article (a) discussed theoretical or conceptual foundations of self-management, (b) were healthcare related, (c) were written in English, and (d) had the full-text available. Articles solely focussing on the application of self-management programmes and self-management interventions without a theoretical support were excluded. Two researchers independently selected the articles based on the above in- and exclusion criteria. And a paragraph about the saturation: This process was characterised by the iterative process of adding new knowledge and information until saturation was reached. The process of saturation was characterised by two main features: triangulation of (a) resources and (b) researchers.

		About the resources: three different databases were used and the references in the selected articles were checked which led to additional articles that we also analysed. Articles including new knowledge were added to the list; articles concerning already-known information were withheld, but only to confirm the already-known information. About the triangulation of the researchers. After the first author, all other researchers in this project were asked to critically read the gathered information and see whether possible published information was missing. When information was missing, the experts were asked to forward articles. Peer debriefing with the entire research group and a final consensus meeting led to an agreement of saturation. (See figure 1: Flow chart of the search strategy and selection procedure).
The introduction section would also benefit from a bit more focus, for example, the point about the change towards a more dynamic definition of 'health' is noted, but this deviates from the focus of untangling the concept of self-management. In addition, it would be useful for the reader to get a sense of the authors' delineation of self-management and other related terms and concepts such as 'self-care' and 'self-management support'.	We agree with this comment. Our first intention was to start on the changing health paradigm and then put the focus on the importance of self-management. We shortened also the introduction towards health and only use this as a means to get to the reason why self-management has become an important key concept in the health care delivery.	Changes in the manuscript: The aspect of health has been shortened and has just been used to introduce the need to focus on self-management The following rationale has been built up in the introduction. - Short intro on how self-management in increasingly advocated in reasoning about health and health care delivery. - Argumentation that self-management in primarily important in chronic conditions and multimorbidity - Short overview of the evidence of the self-management programmes

		- The discourse about the ambiguity of the concept based on randomized controlled trials and . - The need to find common ground on the concept and the delineation of other concepts Irrelevant items that hinder the readability of the introduction have been removed: The following two aspects have been totally removed: As a consequence of growing evidence, it can be agreed that there are indeed arguments in favour of changing towards a more dynamic definition of health in which self-management is a key concept. An argument that is often made is that the current, static definition of health as “a complete state of health” cannot be measured and therefore cannot be considered fully operational. However, this same argument – the inability to measure – can also be applied to the newly proposed dynamic definitions of health. When it comes to self-management, is it possible to measure the level in a reliable and valid way?