PEER REVIEW HISTORY

ARTICLE DETAILS

TITLE (PROVISIONAL)	The key components of shared decision making: A systematic review of models
AUTHORS	Bomhof-Roordink, Hanna; Gärtner, Fania; Stiggelbout, Anne; Pieterse, Arwen

VERSION 1 - REVIEW

REVIEWER	Gary Groot University of Saskatchewan Canada
REVIEW RETURNED	06-Jun-2019

GENERAL COMMENTS	I think this is a useful contribution to the SDM literature but the one outstanding question that you hint at but don't directly address (at least not in my mind) is the question of whether there is an evolution of thought over time about what constitutes SDM (an evolving consensus if you will) or if there are competing visions of what SDM is or should be that the various models articulate. The other important issue that you allude to but don't actually address overtly is that the models per se are not tested in the real world (at least not in the review conducted here) and as such represents primarily the aspirations of the authors. There are a couple of places where you have an SDM....rather than a SDM... that you might wish to correct.

REVIEWER	Jennifer Richmond University of North Carolina at Chapel Hill Gillings School of Global Public Health, United States
REVIEW RETURNED	17-Jun-2019

GENERAL COMMENTS	Thank you for the opportunity to review this interesting systematic review of shared decision making (SDM) models. After conducting a rigorous review of the literature, the authors provide a useful overview of SDM models as well as the most common components present in these models. This paper will make a useful contribution to the literature and points to potential future directions for this field (e.g., the need to identify the core of what SDM is). Below are suggestions to strengthen this paper. 1. In the Introduction, please provide a few examples of the elements from Makoul and Clayman's SDM model to help orient

	the reader to these elements since they are referenced later throughout the article. 2. In the Methods, please describe why PubMed, Embase, and Cochrane were selected as the three databases to search. 3. In section 2.5 Data analysis, page 6 lines 36-43, it would be helpful to provide the specific time periods that were identified. 4. The first paragraph of the Results section notes that 2,710 initial records were reviewed, but this number is not present in Figure 1. For example, Figure 1 notes that 2,575 records were screened. Please clarify this discrepancy. 5. Section 3.1.3 on the development processes provides a helpful overview of how the models in the review were developed. This section notes that 20 of the included SDM models explicitly referred to earlier models as a starting point or to the literature more generally. Please provide more details on the specific models that are most commonly drawn upon. It appears that the authors have this data as they mention in the Discussion that the SDM models by Elwyn, Charles, and colleagues informed a number of models. Depicting exactly how many models used these prior models as foundations to inform their new/expanded models would help ground the reader in this finding before it is mentioned in the Discussion. 6. For the graphs depicting time trends, it would be helpful if the figures included the labels near the applicable line. Currently, it is hard to track which lines correspond to each SDM component using only the color-coded key. 7. Section 3.5 provides an overview of how to interpret Figure 4. As Figure 4 contains a lot of information, it would help orient the readers if the authors provided a few big picture takeaways from the figure. 8. The authors note that it is perhaps not surprising that patient expertise was rarely included in SDM models (Discussion page 10, lines 40-47). More clarification about what patient expertise means would help make this point clearer. For example, is this patient expertise about their own body/health, lived experience with trying treatments for a particular health issue, and/or what matters most to them? Or, is patient expertise more focused on the lack of patient knowledge about the evidence base regarding a specific medical issue? If patient expertise refers to the former, it is interesting and potentially quite problematic that SDM models rarely mention patient expertise about their own body/health, for example. 9. Page 11 lines 42-44: The following sentence is not complete/clear and should be revised: “Especially since patients formulate their own responsibilities in SDM, in qualitative studies asking about SDM.” 10. Did any of the models include actors responsible for completing or supporting the SDM components outside the patient or health care provider (e.g., caregivers or family members)? If so, this would be important to mention and consider as SDM models continue evolving. 11. In the Discussion, the authors note that existing models may be adapted or extended if this proves useful. It may also be important to recommend that adaptations and extensions of existing models include patients and health care providers in the development process as possible given that this review found that these two key players in SDM were rarely involved in the development process. 12. Additionally, the authors identified “mention treatment options” as a frequently mentioned component of SDM models. This

	component was developed to summarize elements such as present evidence, benefits/risks, and feasibility of options as described in Table 1. Consider revising the description of “mention treatment options” to convey the depth and complexity of the elements that make up this component. For example, “describe” or “discuss” treatment options may better convey the process of presenting evidence. The word “mention” may imply that this conversation happens quickly or in passing, when the elements appear to describe a more in-depth conversation about treatment options that should occur.

VERSION 1 – AUTHOR RESPONSE

Reviewers’ comments:

Reviewer: 1

1. I think this is a useful contribution to the SDM literature but the one outstanding question that you hint at but don't directly address (at least not in my mind) is the question of whether there is an evolution of thought over time about what constitutes SDM (an evolving consensus if you will) or if there are competing visions of what SDM is or should be that the various models articulate.

Our approach has been to itemize the authors’ descriptions of their models and show how authors think about the SDM process by merging elements that were similar. We do not compare complete definitions with each other and therefore cannot easily answer the reviewer’s question more specifically than we do in Figure 3. Here we show how often the components are part of definitions of the SDM process over time. We could not perform a statistical analysis of the findings. The figure suggests that authors have had different ideas about how important they consider particular components to the process of SDM over time (e.g., regarding Create choice awareness, as we discuss in section 3.4 Time trends), and have been more unanimous about how important other components are to the concept (e.g., Describe treatment options). Some components have steadily been part of most models (e.g., Describe treatment options), the importance of others has decreased (e.g., Healthcare professional preferences) (see section 3.4 Time trends). The general impression is not one of competing visions of what SDM is, but rather one of variable ideas about the importance of components.

2. The other important issue that you allude to but don't actually address overtly is that the models per se are not tested in the real world (at least not in the review conducted here) and as such represents primarily the aspirations of the authors.

Our review indeed did not focus on results of studies testing the models. Some authors have asked for feedback on their model to improve it (e.g., Légaré, Stacey, Gagnon et al, 2011), others have based their SDM-model on observations of clinical practice and compared it to an existing model (e.g., Joseph-Williams et al, in press 2019). None have attempted to test their definition of SDM.

3. There are a couple of places where you have an SDM....rather than a SDM... that you might wish to correct.

To the best of our knowledge, an ‘n’ should be added since the pronounced word starts with a consonant (i.e., phonetically, SDM starts with ‘es’). If the Editor feels it should be “a” we will change all instances of ‘an SDM’ into ‘a SDM’.

Reviewer: 2

Thank you for the opportunity to review this interesting systematic review of shared decision making (SDM) models. After conducting a rigorous review of the literature, the authors provide a useful overview of SDM models as well as the most common components present in these models. This paper will make a useful contribution to the literature and points to potential future directions for this field (e.g., the need to identify the core of what SDM is). Below are suggestions to strengthen this paper.

1. In the Introduction, please provide a few examples of the elements from Makoul and Clayman’s SDM model to help orient the reader to these elements since they are referenced later throughout the article.

We have now added four elements that Makoul & Clayman identified in their review to the first paragraph of the Introduction as examples.

2. In the Methods, please describe why PubMed, Embase, and Cochrane were selected as the three databases to search.

We have now extended our search to four additional databases, see our response to the Editor’s requests.

3. In section 2.5 Data analysis, page 6 lines 36-43, it would be helpful to provide the specific time periods that were identified.

We have now added the time periods by which we grouped the models to depict trends over time in the text, to paragraph 2.5, Data analysis.

4. The first paragraph of the Results section notes that 2,710 initial records were reviewed, but this number is not present in Figure 1. For example, Figure 1 notes that 2,575 records were screened. Please clarify this discrepancy.

We have updated the number of records that were reviewed in the text (see top of section 3 Results) and in Figure 1.

5. Section 3.1.3 on the development processes provides a helpful overview of how the models in the review were developed. This section notes that 20 of the included SDM models explicitly referred to earlier models as a starting point or to the literature more generally. Please provide more details on the specific models that are most commonly drawn upon. It appears that the authors have this data as they mention in the Discussion that the SDM models by Elwyn, Charles, and colleagues informed a number of models. Depicting exactly how many models used these prior models as foundations to inform their new/expanded models would help ground the reader in this finding before it is mentioned in the Discussion.

We have now included additional detail to Appendix B. Specifically, we have added for a model what later models this particular model has informed. E.g., the model by Shay & Lafata (2014) was explicitly mentioned by Truglio-Londrigan & Slyer (2018) to have informed their model. The list of references that we now have added to Appendix B immediately shows how many models a particular model has informed. Please note that authors usually refer to a number of SDM models in their paper. We have only counted a model as input to a newer model if the authors explicitly referred to that model as direct input to their model, not if they only referred to it in their overview of the literature. Examples of direct input include: The model may have come up in the search of the literature that was conducted as part of the methods of developing the newer model (this was the case for, e.g., Makoul & Clayman, 2006 and Truglio-Londrigan & Slyer, 2018). Or, e.g., an existing model was revised (e.g., the model by Elwyn et al, 2017 is a revision of the model by Elwyn et al, 2012).

6. For the graphs depicting time trends, it would be helpful if the figures included the labels near the applicable line. Currently, it is hard to track which lines correspond to each SDM component using only the color-coded key.

We have now put the labels near the applicable line as much as possible. This was not possible when lines intersected.

7. Section 3.5 provides an overview of how to interpret Figure 4. As Figure 4 contains a lot of information, it would help orient the readers if the authors provided a few big picture takeaways from the figure.

Figure 4 is meant to help readers see what components are seen as particularly relevant to the SDM process in a specific health domain, and therefore what components may need particular attention in training of professionals, or in the development of decision support. Overall, it provides a visual illustration of how important components are conceived to be for SDM. We have now added a few take-away messages from the figure to paragraph 3.5. of the Results section.

8. The authors note that it is perhaps not surprising that patient expertise was rarely included in SDM models (Discussion page 10, lines 40-47). More clarification about what patient expertise means would help make this point clearer. For example, is this patient expertise about their own body/health, lived experience with trying treatments for a particular health issue, and/or what matters most to them? Or, is patient expertise more focused on the lack of patient knowledge about the evidence base regarding a specific medical issue? If patient expertise refers to the former, it is interesting and potentially quite problematic that SDM models rarely mention patient expertise about their own body/health, for example.

'Patient expertise' refers to patients' knowledge of their own body and experiences (i.e., the first description of the reviewer) and can be seen as the rationale for promoting SDM. The component consists of one element in our analysis. The element was extracted from three different models and included the following ideas: Patients bring in their unique knowledge about their body and symptoms (Shay & Lafata, 2014); Convey that only the patient can be the expert on treatment aims, priorities and preferences (Van de Pol et al, 2016); Value the expertise of the patient (Volk et al, 2014). Note that the focus of the component is very close to that of other components, including 'Learn about the patient', 'Patient preferences', and 'Advocate patient views'. The authors' focus may be more on how to uncover this expertise when describing the SDM process than on the expertise itself. That is, most models focus on behaviour which 'Patient expertise' is not, and which 'Learn about the patient' is. In sum, it does not seem problematic to us that SDM-models often do not explicitly mention 'Patient expertise' and we added the next sentence to the discussion: "The authors' focus may be more on how to uncover this expertise (e.g., Learn about the patient) when describing the SDM process than the expertise itself" on p.11. We removed the following sentence in that same paragraph, since it did not add valuable information and may only be confusing: "In contrast, patients justify their preference for healthcare professionals to make the final decision based on the healthcare professional' expertise."

9. Page 11 lines 42-44: The following sentence is not complete/clear and should be revised: "Especially since patients formulate their own responsibilities in SDM, in qualitative studies asking about SDM."

We have reworded the sentence on p.12 as follows: "It is especially important to acknowledge patient's role in SDM-models since patients formulate their own responsibilities in SDM, in qualitative studies asking about SDM."

10. Did any of the models include actors responsible for completing or supporting the SDM components outside the patient or health care provider (e.g., caregivers or family members)? If so, this would be important to mention and consider as SDM models continue evolving.

We focused on SDM-models that assumed that the patient was competent, i.e., able to participate in the decision making process. We have now specified this in Methods section (see section 2.2). We included three models that relate to treatment decision making between healthcare providers, parents, and underaged patients. In these cases, other individuals than the patient and healthcare provider are explicitly acknowledged as having a role in the SDM process. Clearly, this may be the case in many other situations. Indeed, some of the other models included elements relating to supporting the decision making process. Patients will receive much of this support from their family and close others. Some models explicitly acknowledge the role of others (e.g., Lown et al, 2009; Bomhof-Roordink et al, 2018). We have added a note on the role of others to the Discussion on p.11 by including this statement: "Offer time and Gather support and information e.g., are part of relatively few models and typically convey attention to time outside of consultations and to the involvement of

other stakeholders in the process, such as informal caregivers. Future SDM-models may use a triadic approach towards SDM, in which the role of the caregiver is explicit."

11. In the Discussion, the authors note that existing models may be adapted or extended if this proves useful. It may also be important to recommend that adaptations and extensions of existing models include patients and health care providers in the development process as possible given that this review found that these two key players in SDM were rarely involved in the development process.

One-third of the models (14/40) was developed based on empirical data gathered from patients and/or healthcare professionals with the explicit aim to inform the model. Other models may still have been informed by data gathered in patients and/or healthcare professionals, but not with the aim to inform the development of a model. We added the following to the Discussion on p.12 : "Also, authors of future SDM-models may want to involve patients and healthcare professionals in the development process of their models, to ensure that these reflect the views of those who enact SDM in practice."

12. Additionally, the authors identified "mention treatment options" as a frequently mentioned component of SDM models. This component was developed to summarize elements such as present evidence, benefits/risks, and feasibility of options as described in Table 1. Consider revising the description of "mention treatment options" to convey the depth and complexity of the elements that make up this component. For example, "describe" or "discuss" treatment options may better convey the process of presenting evidence. The word "mention" may imply that this conversation happens quickly or in passing, when the elements appear to describe a more in-depth conversation about treatment options that should occur.

We changed the wording of the component to read now "Describe treatment options".

VERSION 2 – REVIEW

REVIEWER	Gary Groot University of Saskatchewan Canada
REVIEW RETURNED	10-Oct-2019

GENERAL COMMENTS	well done, no revisions suggested

REVIEWER	Jennifer Richmond University of North Carolina at Chapel Hill, United States
REVIEW RETURNED	26-Oct-2019

GENERAL COMMENTS	The authors have addressed all of my previous concerns and suggestions. This paper will make a useful contribution to the shared decision making literature, especially since the search has now been updated to include models published more recently and in a larger variety of databases.