

PEER REVIEW HISTORY

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ARTICLE DETAILS

TITLE (PROVISIONAL)	Benefits and Limitations of Business Process Model Notation in Modelling Patient Healthcare Trajectory: A Scoping Review Protocol
AUTHORS	Kassim, Said; Gartner, Jean-Baptiste; Labbé, Laurence; Landa, Paolo; Paquet, Catherine; Bergeron, Frédéric; Lemaire, Célia; Côté, André

VERSION 1 – REVIEW

REVIEWER	Basile, Luigi Jesus Polytechnic University of Bari, Department of Mechanics, Mathematics and Management (DMMM)
REVIEW RETURNED	07-Mar-2022

GENERAL COMMENTS	<p>General</p> <p>The dates of the study should be included in the manuscript, unfortunately in the manuscript the time range used is not specified if not in the supplementary materials.</p> <p>The limitations of the methodology adopted are not stated.</p> <p>I would suggest checking the queries shown in the supplementary materials, for example I find that for web of science query #1 shows 9.566 papers and query #2 shows 667.873, and the intersection takes 466 papers. While the authors have indicated respectively 9.832, 692.475 and 475 papers.</p> <p>Abstract</p> <p>From my perspective, in the abstract is necessary to add more details about the objectives of this scoping review.</p> <p>Stage 2: Identifying Relevant Studies</p> <p>I would suggest justifying the keywords used with references and inserting all the journals that will be used for hand research.</p> <p>If it helps, this review (https://doi.org/10.3390/data5040099) aimed to present the current progress in linking medical specialities with the BPMN's modelling notation.</p>
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REVIEWER	Chudyk, Anna University of Manitoba
REVIEW RETURNED	30-Mar-2022

GENERAL COMMENTS	<p>It's really nice to see such a well-planned and thought-out protocol. This rarely happens, but I do not have any major comments regarding the proposed methods (which is what I was asked to focus my review on). I commend the authors on incorporating the consultation stage within their proposed scoping review. Work related to https://doi.org/10.1016/j.jtcvs.2021.11.052 may prove to be useful to your eventful planning and conduct of this stage.</p> <p>Some minor comments regarding the abstract:</p>
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	<p>Line 61: why select studies and how are they different from articles? This is confusing. Clarify or remove select studies. Maybe you mean grey literature.</p> <p>Line 67: for optimizing not at optimizing</p> <p>Line 62-63: I think this should be revised to better reflect what your manuscript states. Based on what I read here I assumed you were summarizing the data quantitatively in tables. However, reading through your paper, you seem to be planning to use descriptive statistics and thematic analyses.</p>
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VERSION 1 – AUTHOR RESPONSE

Reviewer # 1:

Dr. Luigi Jesus Basile, Polytechnic University of Bari
Comments to the Author:

General

The dates of the study should be included in the manuscript, unfortunately in the manuscript the time range used is not specified if not in the supplementary materials.

Response: Thank you very much for carefully reviewing our manuscript and providing us with insightful comments and suggestions for improvement. We have revised the methods section and have incorporated the time range used for research strategies as Dr. Luigi Jesus Basile suggested. The following sentence has been added in the revised methods section and highlighted yellow:

In the second step, the search strategy will be adapted and implemented for each included information source (PubMed, Embase (Embase.com), CINAHL(EBSCO), Web of Science, ABI/Inform (ProQuest), Academic Search Premier (EBSCO), and Google Scholar) for potential eligible studies published in either English or French language, from 2004, year when BPMN was initially developed by the Business Process Management Institute, until December 2021.

The limitations of the methodology adopted are not stated.

Response: Thank you very much for bringing that to our notice. The limitations of the methodology herein adopted are the missing assessment of the studies selected by the scoping review and the choice of language studies and the choice of the selection period. We have included the limitations of the methodology in the list “Strengths and limitations of this study” at the beginning of the manuscript (see below text in yellow).

- ❖ The quality appraisal of publications captured will not be assessed, as it is beyond the aim of a scoping review.
- ❖ The studies were selected limiting them to French and English language and we consider only the studies published between 2004 and 2021.

I would suggest checking the queries shown in the supplementary materials, for example I find that for web of science query #1 shows 9.566 papers and query #2 shows 667.873, and the intersection takes 466 papers. While the authors have indicated respectively 9.832, 692.475 and 475 papers.

Response: Thank you for this comment. Unfortunately, databases adjust their content, making it difficult to replicate the search strategy. It is why the number of intersection results was only 466 papers. Meanwhile, we are confident that the number of results mentioned in the supplementary material fully reflect the numbers we have obtained when the search strategy was performed on December 9th, 2021.

Abstract

From my perspective, in the abstract is necessary to add more details about the objectives of this scoping review.

Response: Thank you very much for carefully reviewing our manuscript and providing us with insightful comments and suggestions for improvement. We have revised the Abstract and have incorporated details explaining the main objectives of this study as suggested by Dr. Luigi Jesus Basile. The changes have been highlighted in yellow in the revised manuscript.

We will assess BPMN's ability to model key dimensions or concepts of the healthcare process and to meet the needs of stakeholders. The review will highlight the advantages of this approach to support clinical activities and decision-making processes associated with the healthcare trajectory, proposing a conceptual framework for improving the use of BPMN in healthcare.

Stage 2: Identifying Relevant Studies

I would suggest justifying the keywords used with references and inserting all the journals that will be used for hand research. If it helps, this review (<https://doi.org/10.3390/data5040099>) aimed to present the current progress in linking medical specialities with the BPMN's modelling notation.

Response: We thank you for the precious indication. We have changed the sentence. However, we have listed the two main journals where is it easy to find articles on medical specialties with the BPMN's modelling notation, together with a backward snowballing search.

In addition to the electronic database search, we will undertake a backward snowballing⁶⁰ search that will involve hand-searching the reference lists of the identified reviews^{33-36,61} in order to find other relevant articles. We will also perform a hand search of some relevant journals (e.g., Institute of Electrical and Electronics Engineers, Health Informatics Journal, IOS Press - Studies in Health Technology and Informatics, Journal of Digital Imaging, Lecture Notes in Artificial Intelligence, Springer Procedia Computer Science, Recent Advances in Computer Engineering, Information Systems Journal , European Journal of Information System, Lecture Notes in Business Information Processing), search citations of relevant papers and scan the reference lists of relevant papers.

Reviewer # 2:

Dr. Anna Chudyk, University of Manitoba

Comments to the Author:

It's really nice to see such a well-planned and thought-out protocol. This rarely happens, but I do not have any major comments regarding the proposed methods (which is what I was asked to focus my review on).

Response: We really thank you for the lovely comment.

I commend the authors on incorporating the consultation stage within their proposed scoping review. Work related to <https://doi.org/10.1016/j.jtcvs.2021.11.052> may prove to be useful to your eventful planning and conduct of this stage.

Response: The concerns of Dr. Anna Chudyk have been taken in consideration in our revised scoping review protocol. Therefore, we have added the following sentence in the Consultation stage.

The final consultation stage offers an ideal mechanism to enhance the validity of the study outcome while translating findings with the stakeholders or health professionals and patients⁶⁵.

Some minor comments regarding the abstract:

Line 61: why select studies and how are they different from articles? This is confusing. Clarify or remove select studies. Maybe you mean grey literature.

Response: we have removed the word “studies” and we used only “articles”

Line 67: for optimizing not at optimizing

Response: Thank you so much for noting these typos. We have revised our manuscript and replaced the preposition "at with for" as suggested by Dr. Anna Chudyk.

Line 62-63: I think this should be revised to better reflect what your manuscript states. Based on what I read here I assumed you were summarizing the data quantitatively in tables. However, reading through your paper, you seem to be planning to use descriptive statistics and thematic analyses.

Response: We thank you for this indication. We have revised the sentence and we included both descriptive statistics and thematic analysis (changes are reported below and highlighted in yellow).

The results will be presented using descriptive statistics and thematic analysis on qualitative data.

VERSION 2 – REVIEW

REVIEWER	Basile, Luigi Jesus Polytechnic University of Bari, Department of Mechanics, Mathematics and Management (DMMM)
REVIEW RETURNED	21-Apr-2022

GENERAL COMMENTS	<p>Dear Authors,</p> <p>I really appreciated your revisions to the manuscript that from my perspective have further increased the quality of your work. However, I still have some minor concerns.</p> <p>1. I found some typos and grammatical errors throughout the manuscript, so I would suggest proofreading the manuscript. For instance:</p> <ul style="list-style-type: none">Line 118: health expenditure and financing has increased substantially in developed countries such as the United States (US) and Canada. → health expenditure and financing have increased substantially in developed countries such as the United States (US) and Canada⁶⁻⁹.
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	<ul style="list-style-type: none"> • Line 210: no conclusion on the effectiveness were drawn. → no conclusions on the effectiveness were drawn/ no conclusion on the effectiveness was drawn. • Line 329: as well the → as well as the. <p>2. From my point of view, it would be useful to justify the keywords selected to perform the database search. Why were only those keywords used? Did similar studies use the same keywords? Were synonyms considered? From the current manuscript, I can not tell whether the selection of keywords was done following a strategy. I would suggest describing the strategy and justifying the keywords used also by using references.</p> <p>3. In the "Supplementary Materials - Database Search Strategy" the field "database limits" is expressed inconsistently between the various searches carried out. For instance, all searches have the same limits (period and journal type, but I do not see the language), while in some searches is stated that "No database limit has been applied" in the field "database limits". So, I would suggest revising the field "database "limits".</p>
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VERSION 2 – AUTHOR RESPONSE

Reviewer # 1:

Dr. Luigi Jesus Basile, Polytechnic University of Bari
Comments to the Author:

Dear Authors,

I really appreciated your revisions to the manuscript that from my perspective have further increased the quality of your work. However, I still have some minor concerns.

1. I found some typos and grammatical errors throughout the manuscript, so I would suggest proofreading the manuscript. For instance:

- Line 118: health expenditure and financing has increased substantially in developed countries such as the United States (US) and Canada -> health expenditure and financing have increased substantially in developed countries such as the United States (US) and Canada⁶⁻⁹.
- Line 210: no conclusion on the effectiveness were drawn. -> no conclusions on the effectiveness were drawn/ no conclusion on the effectiveness was drawn.
- Line 329: as well the -> as well as the.

Response: Thank you very much for carefully reviewing our manuscript and providing us with insightful comments and suggestions for improvement. We have revised the typos that you have reported and we have incorporated them in the manuscript (see highlighted yellow parts)

2. From my point of view, it would be useful to justify the keywords selected to perform the database search. Why were only those keywords used? Did similar studies use the same keywords? Were synonyms considered? From the current manuscript, I can not tell whether the selection of keywords was done following a strategy. I would suggest describing the strategy and justifying the keywords used also by using references.

Response: Thank you very much for this indication. We have added an additional part in the Methods section where we report the details of the keyword's justification. We have considered similar studies for the keyword selections (Loya et al. 2014, Mincarone et al. 2018, Zarour et al. 2019, De Ramon Fernandez et al. 2020). We have also considered synonyms. The following sentence has been added in the revised methods section and highlighted yellow:

In detail, we used an adjacency operator between the expression "Business Process" and terms (Model OR Method OR management) that seemed most relevant to us and consistent with previous published systematic literature reviews³³⁻³⁶, as subject experts, in order to capture all potential articles using synonyms and words variations of the "Business Process Model Notation" concept, in addition to BPMN acronym. To find articles about patient "Healthcare Trajectory", a broad concept containing several components, we used a mix of general (e.g., Practice Guidelines as Topic OR Workflow OR Clinical Decision-Making) and specific terms (e.g., Patient Care Management OR Critical Pathways), both from controlled vocabulary (e.g., MeSH terms) and keywords to avoid missing articles. We used the Boolean operator AND to restrict our search to articles specifically related to these two concepts.

3. In the "Supplementary Materials - Database Search Strategy" the field "database limits" is expressed inconsistently between the various searches carried out. For instance, all searches have the same limits (period and journal type, but I do not see the language), while in some searches is stated that "No database limit has been applied" in the field "database limits". So, I would suggest revising the field "database "limits".

Response: Thank you very much for noting this inconsistency in the supplementary material. We have revised the part related to the language, as the selection of the English and French studies will be done in the abstract screening and full-text selection. In table 1 we have highlighted in yellow the sentence of the language selection in the type of evidence of PCC framework. In the supplementary material we have update the database limits.