PEER REVIEW HISTORY

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ARTICLE DETAILS

TITLE (PROVISIONAL)	Research capacity in nursing: a concept analysis based on a scoping review
AUTHORS	Chen, Qirong; Sun, Mei; Tang, Siyuan; Castro, Aimeel

VERSION 1 – REVIEW

REVIEWER	Shaminder Singh University of Calgary; Canada
REVIEW RETURNED	06-Aug-2019

GENERAL COMMENTS	I congratulate the authors to choose the topic. this is a well written manuscript. I invite you to clarify some few concepts and the process of the method: Page 4-5: under heading "method": 1) Please clarify what are "partially mature concepts", and what a researcher actually does in order to mature the concepts or "deeply explore" their conceptualizations by first asking and then answering analytical questions. It sounds like the questions and answers come from within the researcher, which is fine if you can let the readers know how does that happen? 2) "Boundaries determine when a concept is or not an example of a certain concept" I wonder what you want to say here. Similarly, other conceptual definitions lack clarity in this paragraph. Page 4; line 36: I wonder 1) what other methods, 2) what are their limitations that Pragmatic Utility overcomes, and 3) how? Also, please define terms such as on Page 5; line 49: define backtracking. Please proofread for grammar such as review for the articles (a, an & the) used throughout the manuscript. Some other grammar related examples for consideration as follows: Page 1; line 45: plural "databases" Page 6; line 38: consider replacing "as" with "in" before Figure 1 Page 17; ;line 20: consider "should also be" instead "should be also" Page 18; line 33: Choose one: "will or "could" Please write limitations of your work in greater detail. In my view, this is a timely manuscript and worth publishing. Good luck!

REVIEWER	S. Iribarren University of Washington, USA

REVIEW RETURNED	26-Aug-2019

| GENERAL COMMENTS | The authors make the case for why better defining 'research capacity in nursing' is important and describe the process of coming up with a definition through literature search and analysis. Overall, mostly well written, however, there are several areas which need to be improved for clarity of methodology, readability, and to justify conclusions. The entire manuscript needs to be reviewed for grammatical errors. This paper would be much stronger if it focused on the need and changing expectation of clinical nurses as the motivating factor driving a better-defined concept of 'nursing research capacity.'

The following are recommendations by section:

Abstract

- Is the purpose to "make a concept analysis"? This work may inform theory, research and intervention development but it is not the purpose. From my understanding the purpose is to define 'research capacity' because it has yet to be clearly defined in the literature. The first sentence of the discussion is a better purpose statement.
- The results are not results as the outlined in the result section. The final definition is listed but no info on the literature search results which the methods describe. Also, no mention of Pragmatic Utility which is the start of the methods section in the text.
- The last sentence is not a conclusion from the finding of the research

Intro

- Lacking is the description of nursing research as a discipline. Authors need to clarify for whom the research capacity is referring to e.g., non-research nursing, clinical nursing, non-masters prepared nurses. Otherwise, research is integrated into the education and the capacity should correspond to the degree obtained.
- All disciplines conduct research. There should be included in the intro a brief reflection of how research capacity is defined in other health related disciplines.

Methods

- The order of how the methods are described does not seem to be correct after reading through. It seems the Pragmatic utility came later. It would be helpful to clearly describe the steps taken and list out the order.
- 2nd sentence in methods should be rewritten, e.g., Strengths of pragmatic utility include…
- An example(s) of an 'analytic question' used for this methodology should be included in the methods
- Cite the definitions
- It seems 'competency' should also have been used as a key term or other related terms
- How can you determine "ensured that we had enough pertinent literature"?
- It seems that "broad literature search" is the scoping review? If so name it as such. Scoping review is in the title |

and abstract but does not appear in the methods
- How is "broad literature search" and "selection of appropriate literature differ? They both refer to Figure 1. If this is the same thing it should not be separated as a separate section
- Any study requires initial review of the literature to identify if there is a gap to fill. It is not clear why there would be "Re-examination of the preliminary study aim in light of the literature". A literature search should have been done as a first step and is inherent to research methods.
- The synthesis of results needs to be rewritten. For example, the first sentence is not a complete sentence and the section does not clearly describe the process of synthesizing the data. Referring to where the results are extracted does not belong in methods. There should be a description of the data extraction process.
- Research team should also be described e.g., grad students, experts, part of a course… # of reviewers.

Results

- The first paragraph is not a thorough intro to the results or overview. Generally, the main themes are described for example
- The last sentence of 3.1. is written as a discussion rather than results. Similarly, section 3.2.3 reads as discussion. Term such as "should be" are not findings but rather recommendations of the authors

Table 1 is unable to be read. It is cut off at the 3rd column. Needs to be reformatted or provided as a separate file.

Discussion

- Statement of "we found that more and more research in recent decades…" does not corresponding with results of 22 articles unless you add publication date trends to your results section.
- The discussion should focus on the research findings.
- As stated previously, if the authors want to describe clinical bedside nurse expectation for research capacity this should be stated/clarified up front.
- Pg 16 lines 15-20 need to be corrected/rewritten.
- It is not "this paper's understanding of the concept…" but rather the authors conclusion from analysis of the literature or the findings in this study. The paper does not understand.
- It seems a bullet point list of main findings for recommendations to improve nursing capacity would be helpful, e.g., plan for sustainability…
- Reference/introduction to intervention studies in the discussion section is confusing.
- Numerous very poorly written sentences throughout making it very hard to understand the points the authors are trying to make. For example, pg 17, starting line 38 onward. I do not believe that the debate should center around research design type
- All research has limitations. The authors should include a limitation section.

VERSION 1 – AUTHOR RESPONSE

Reviewer: 1

Reviewer Name: Shaminder Singh

Institution and Country: University of Calgary; Canada

I congratulate the authors to choose the topic. this is a well written manuscript. I invite you to clarify some few concepts and the process of the method:

Response: Thank you for your encouraging comments and recommendations! We have revised the manuscript in order to incorporate all of your suggestions. Please see our more detailed revisions in the **"Main Document-marked copy"**. We have also uploaded a **"Main Document"** of the manuscript without revision marks, which may be easier to read than the marked copy. All pages and lines listed in the following descriptions of our revisions refer to the pages and lines we added in the **"Main Document-marked copy"**.

Page 4-5: under heading "method":

1) Please clarify what are "partially mature concepts", and what a researcher actually does in order to mature the concepts or "deeply explore" their conceptualizations by first asking and then answering analytical questions. It sounds like the questions and answers come from within the researcher, which is fine if you can let the readers know how does that happen?

Response: According to your suggestions, we have explained "partially mature concepts" in the revised manuscript as follows:

Partially mature concepts are those concepts having multiple or problematic definitions, ambiguous meanings, and confusion with use. These concepts are often used inconsistently in practice and research.[14] {page 6; line 24-25; page 7; line 1}

Furthermore, we have further explained what "analytical questions" are {page 7; line 14-24}. Next, we have described the process of how we first identified the analytical questions {page 11; line 21-25; page 12; line 1-5} and then searched for answers to those questions in the nursing research capacity literature {page 12; line 6-16} in order to build the concept analysis. For more details regarding specific revisions, please refer to 2. Method in the manuscript.

2) "Boundaries determine when a concept is or not an example of a certain concept" I wonder what you want to say here. Similarly, other conceptual definitions lack clarity in this paragraph.

Response: Thank you for pointing out this area of the manuscript lacking in clarity. We have revised the definition of "boundaries" as follows:

Boundaries, which are normally formed by the antecedents and attributes of a concept, are the invisible lines between the concept and other concepts. They delineate what the concept is and what it is not.[16] {page 8; line 8-10}

We have included the definitions of attribute, boundaries, outcomes, and allied concepts in this paragraph. {page 8; line 6-14} We hope this paragraph can be better understood now.

Page 4; line 36: I wonder 1) what other methods, 2) what are their limitations that Pragmatic Utility overcomes, and 3) how?

Response: Thank you for pointing us to this area needing further clarification. In a literature review (Weaver and Mitcham, 2008) which has been cited in the manuscript, three different approaches for concept analysis were found: Wilsonian-derived, Evolutionary, and Pragmatic Utility. The main limitations of the other two methods (Wilsonian-derived and Evolutionary) are that they often have an insufficient data source / too few articles (which may limit a development of the full description of the concept and reduce its broader applicability), the use of dictionary definitions and invented cases (which reduces validity, comprehensiveness, and disciplinary relevance), and less emphasis on the clear definition and

boundaries with other concepts (lacks a clear definition and boundaries in concept analysis). The strengths of Pragmatic Utility (i.e. extensive data, well-articulated criteria and procedures for concept evaluation and comprehensive concept analysis, and intellectual processes of critical appraisal by asking analytical questions and synthesizing results) we have listed in the manuscript could solve the main limitations of the other two methods. Based on your questions, we <="" span="" style="font-family: "Times New Roman"; color: rgb(0, 0, 204);">listed the other two common methods and their main limitations in our manuscript as follows:

The strengths of the Pragmatic Utility method include its use of extensive data sources, its well-articulated criteria and procedures for concept evaluation and concept analysis, and its inclusion of intellectual processes of critical appraisal for asking analytical questions and synthesizing the results.[15] These traits of the Pragmatic Utility method may help it to overcome some of the limitations (e.g. insufficient data sources, the use of dictionary definitions and invented cases, and less emphasis on a clear definition of the concept and its boundaries with other concepts) of other concept analysis methods (such as Wilsonian-derived methods and Rodgers' evolutionary method). [12, 15] {page 7; line 2-11}

We also cited the important reference (Weaver and Mitcham, 2008)-[15] {page 7; line 11} in the manuscript which may be useful for those readers who are interested in exploring more about these three methods and their strengths and limitations.

Also, please define terms such as on Page 5; line 49: define backtracking.
Response: We have revised "During this process, an additional 15 papers were included through backtracking method" as follows:
The additional 15 papers, which were identified as relevant literature through the checking and screening of the reference lists of the 89 articles, were then imported into the EndNote library, as well. {page 9; line 14-17}

Please proofread for grammar such as review for the articles (a, an & the) used throughout the manuscript.
Some other grammar related examples for consideration as follows:
Page 1; line 45: plural "databases"
Page 6; line 38: consider replacing "as" with "in" before Figure 1
Page 17; line 20: consider "should also be" instead "should be also"
Page 18; line 33: Choose one: "will or "could"
Response: Thank you very much for these detailed suggestion; they truly are appreciated. We have corrected them in the manuscript. Furthermore, a native English speaking colleague has helped us to further check and revise the manuscript for grammar.

Please write limitations of your work in greater detail.
Response: We have added the limitations of our study in the discussion part.
Limitations
There are two main limitations of this study. Firstly, our study only included literature written in English. Therefore, language-specific nuances in the concept may be missed, which could have deepened our understanding of this concept. Secondly, literature published before 2009 and outside the six databases were not included in this study. Our rationale for excluding literature before 2009 in this concept analysis was that we wanted to focus on more recent uses of the concept. However, these restrictions may have led to the omission of some relevant studies. {page 24; line 16-23}

In my view, this is a timely manuscript and worth publishing. Good luck!
Response: Dear   Dr. Singh, thank you, again, for   your   positive   comments,   constructive suggestions, and consideration. We hope the new manuscript will meet your expectations.

**Reviewer: 2**

Reviewer Name: S. Iribarren
Institution and Country: University of Washington, USA

The authors make the case for why better defining 'research capacity in nursing' is important and describe the process of coming up with a definition through literature search and analysis. Overall, mostly well written, however, there are several areas which need to be improved for clarity of methodology, readability, and to justify conclusions. The entire manuscript needs to be reviewed for grammatical errors. **Response:** Thank you very much for your time, consideration, and suggestions. We have revised the manuscript according to all of your suggestions. A native English speaking colleague has helped us to check and revise grammatical errors. See more detailed revisions in the **Main Document-marked copy**. We have also uploaded a **"Main Document"** of the manuscript without revision marks, which may be easier to read than the marked copy. All pages and lines mentioned later are those we added in the **"Main Document-marked copy"**.

This paper would be much stronger if it focused on the need and changing expectation of clinical nurses as the motivating factor driving a better-defined concept of 'nursing research capacity.'

Response: Based on this suggestion, we have added following sentences in the 1. Introduction part.

In addition to the concept analysis's potential contributions to instrument development, the concept analysis can also help nurses, nurse managers, nurse leaders, and policymakers to better understand research capacity in nursing.[10] Nursing is not only a scientific or theoretical discipline; it is also a profession with a restricted practice based on evidence. Nurses, as the end-users of the evidence in their practice, increasingly expect to participate in nursing-related research activities to bridge the gap between nursing research and nursing practice, and to improve the quality of the nursing care they provide to their patients.[3, 5] In order for more nurses to participate more in research, the research capacity of the nursing profession needs to improve.[5] To effectively improve research capacity and evidence-based practice in clinical practice settings, there is an urgent need for nurses, nurse managers and leaders, and policymakers to have a better understanding of nursing research capacity. {page 5; line 11-22}

The following are recommendations by section:

Abstract

- Is the purpose to "make a concept analysis"? This work may inform theory, research and intervention development but it is not the purpose. From my understanding the purpose is to define 'research capacity' because it has yet to be clearly defined in the literature. The first sentence of the discussion is a better purpose statement.
  Response: Thank you for this recommendation. We have revised it as follows:
  The purpose of this study is to clarify the concept of research capacity in nursing by identifying its conceptual components in the relevant nursing literature using the Pragmatic Utility method. {page 2: line 6-8}

- The results are not results as the outlined in the result section. The final definition is listed but no info on the literature search results which the methods describe.
  Response: Based on your suggestion, we have revised the "Results" section as follows:

Competence, motivation, infrastructure, and collaboration for nursing research are the antecedents of research capacity in nursing. The attributes of research capacity in nursing are "non-individual level", "context-embeddedness", and "sustainability". The direct outcome of research capacity in nursing is nursing research. The allied concepts identified are nursing research competency, nursing research capability, and evidence-based practice capacity in nursing. {page 2; line 18-25}

Also, no mention of Pragmatic Utility which is the start of the methods section in the text.
We completely agree that the Pragmatic Utility method is a critical aspect of our study which should be mentioned in the Abstract. Based on your suggestion, we have added it *(Pragmatic Utility)* in the last sentence of Objective part and also in the Design part. {page 2; line 8 and line 11}

- The last sentence is not a conclusion from the finding of the research
  Response: Thank you for pointing this out; you are absolutely correct. We think putting the definition of the concept in the Conclusions part is more appropriate, as the definition was developed based on the antecedents, attributes, and outcomes of the concept which were all the results of this study. Therefore, we revised the Conclusions part as follows: *Research capacity in nursing is the ability to conduct nursing research activities in a sustainable manner in a specific context, and it is normally used at a non-individual level. Research capacity in nursing is critical for the development of the nursing discipline, and for positive nurse, patient, and healthcare system outcomes. More studies are needed to further explore the allied concepts of research capacity in nursing, and to better understand relationships among these allied concepts.* {page 3; line 2-7}

Intro

- Lacking is the description of nursing research as a discipline. Authors need to clarify for whom the research capacity is referring to e.g., non-research nursing, clinical nursing, non-masters prepared nurses. Otherwise, research is integrated into the education and the capacity should correspond to the degree obtained.
  Response: This suggestion gives rise to our deep thinking about what the "subject" of research capacity is in the introduction. After further discussions within our research group, we want to clarify that we would like to make an introduction from a macro perspective which focuses on research capacity in the nursing discipline. Based on your suggestion and our purpose, we have added the word "*discipline*" after "nursing" in some places in the 1. Introduction to emphasize that this concept analysis is span style="font-family:'Times New Roman'; color:#0000cc"> for how "research capacity in nursing" is used in a variety of nursing contexts. {page 4; line 14-16}
  We did not specify the "subject" to limit the exploration of research capacity in a specific group of nurses (e.g. clinical nurses, non-masters prepared nurses, etc.). Our rationale for not specifying is that during the literature review, we found that "research capacity in nursing" was used in many different (non-individual) contexts (e.g. the research capacity of the academic staffs in universities, the research capacity of clinical nurses in hospitals, the nursing research capacity of hospitals, the nursing research capacity of a country, and the research capacity of nursing discipline, etc.). This finding was also reflected in the description of the attribute - Non-individual level in 3.2.2 Attributes. {page 15; line 19-25}

- All disciplines conduct research. There should be included in the intro a brief reflection of how research capacity is defined in other health related disciplines.
  Response: Thank you for this recommendation. When we were preparing this manuscript, we tried to find the definitions of research capacity in other health-related disciplines to provide a related background. However, we did not find published literature including a clear

and consistent definition of research capacity in other health-related disciplines. We found a study in 2009 which *pointed out that the concept of research capacity had not been well defined (Corchön, 2009).* And we did not find any other study on concept analysis of research capacity (in any health-related disciplines) after 2009.

Based on your suggestion and existing evidence, we have revised one sentence in the 1. Introduction as follows:

After a broad search and review of the literature, no clear definition or specific conceptual dimensions (antecedents, attributes and outcomes) of research capacity in nursing were found (in fact, no clear definition and concept analyses of research capacity in any health-related discipline were found).[11] {page 5; line 23-25}

Methods

- The order of how the methods are described does not seem to be correct after reading through. It seems the Pragmatic utility came later. It would be helpful to clearly describe the steps taken and list out the order.

  Response: Based on this suggestion and some following suggestions, we have significantly revised the method part to make it more fluent. We have also provided the order list as follows:

  The following steps were followed to conduct a Pragmatic Utility concept analysis based on a scoping review:[10, 14, 18] *(1) "Clarify the study purpose"; (2) "Search literature broadly and select appropriate literature"; (3) "Get inside the literature"; (4) "Read the literature interpretively and identify analytical questions"; (5) "Record responses on a data collection sheet"; (6) "Synthesize the results".* {page 8; line 23-25; page 9; line 1-3}

- 2nd sentence in methods should be rewritten, e.g., Strengths of pragmatic utility include…

  Response: We have revised the sentence in the manuscript. {page 7; line 2-3}

- An example(s) of an 'analytic question' used for this methodology should be included in the methods

  Response: Based on the suggestion, we have added the following contents in the manuscript:

  For example, the fifth analytical question was "What factors are demanded for or could directly influence nursing research capacity?" All related data in included literature which could answer this question were extracted and used to answer the analytical question, and the answers were recorded as "responses from literature" in the data collection sheet. The answers were summarized and shown in the "Responses from Literature" column in Table 1. {page 12; line 11-16}

- Cite the definitions

  Response: Thank you for this reminder. We have added the references for the definitions. Because the definitions of Antecedents, Attributes, Outcomes, Allied concepts were extracted from the same reference (Morse, 2016)-[10], we have cited the same reference for these definitions. For the definition of Boundaries, we have cited the reference (Weaver et al., 2008)-[16]. {page 8; line 6-14/span>}

- It seems 'competency' should also have been used as a key term or other related terms

  Response: Thank you for offering this point for reflection. While reading some literature before this study, we found "competency" was not the exact concept (capacity) we were searching for. In order to specifically explore the concept "research **capacity** in nursing", we did not include "competency" as a key term in the literature search of this study. Further, "nursing research competency" was an allied concept (i.e., similar but not the same concept as "nursing research capacity") we found in the concept analysis, it was also the reason we did not include it as a search word.

Thanks to this comment, we found a mistake we made in 3.3. Allied Concepts. We mistakenly listed nursing research competence as an allied concept. Actually, the "nursing research competency", rather than "nursing research competence" (which is an antecedent with clear meaning in our study), was the allied concept we wanted to list. The main reason for this mistake should be a spelling mistake. The manuscript was revised many times by different researchers in our research group and had many versions. There may be a spelling mistake occurred at a point of time and the later revisions included this mistake. We should pay more attention to this part. We are sorry for this mistake. We have corrected this mistake in the manuscript. {page 20; line 9-17}.

- How can you determine "ensured that we had enough pertinent literature"?
Response: After reading the results of our scoping review of this body of literature, with 22 studies, we recognized that there was enough information for us to identify the conceptual components of the concept. However, after we made significant revisions based on your suggestions, we found the sentence about "ensured that we had enough pertinent literature" was redundant in the new manuscript. Therefore, we have deleted the sentence in the new manuscript.

VERSION 2 – REVIEW

REVIEWER	Shaminder Singh University of Calgary, Canada
REVIEW RETURNED	15-Oct-2019

| GENERAL COMMENTS | The readability and clarity have improved in this version. I would recommend the authors to review the "introduction" section and situate their advocacy appropriately for developing the measurement instruments within the scope of the manuscript. The suggestion may be an adequate recommendation for future research in the discussion section.

Introduction section:

The authors claimed that a valid and reliable measurement instrument is "required" to enhance research capacity in nursing. An expansion of this claim is needed. Please clarify that in the absence of a "matured" concept of research capacity, how we know that a measurement tool will be a "requirement" to enhance the research capacity? One would wonder why a measurement tool is needed uniquely for the discipline of nursing to improve its research capacity?

Please move the definition of "partially mature concept" early on page 4 when it comes first in the manuscript.

What was the logic behind focusing the literature review between 2009-2019? The authors stated that they "wanted to," but a reader would wonder why so? Research concepts and capacity may develop in decades.

Page 3, line 26: Please explain what authors mean by "research performance in nursing remains far below expectations." How the authors define "Research Performance" and measure it? Please explain how the performance of nursing research was measured in the cited articles and with "expectations" of whom?

Page 3, line: 29-40: The nursing research is claimed to be a "new" discipline. One wondered what criterion was applied to consider |

	nursing research is "new or old." What kind of "attention and support" required in nursing research and comparison to what discipline? Please clarify the comparison criteria of "more new areas in nursing" and "ever more nursing research needs" in point number two of the paragraph.
	Page 3, Line 45: A reader may wonder, what are the "barriers and facilitators to improving research capacity in nursing" that the authors mentioned and cited?
	Method Section:
	This section is well-written. Please define "the scoping review method" and why it was chosen for this literature review method? "Analytic questions" are defined on page 5 para 2, please bring it up in the first paragraph of the method section when it is mentioned initially?
	Few more points to consider:
	Some terms/ phrases in the manuscript are either redundant or need more clarity. Some examples are as follow, please considering reviewing within their respective contexts in the manuscript: "deep" concept analysis "well-validated" could be replaced with "validated." Nursing is "a profession with a restricted practice" (Page 4, line 17). Please clarify the term "restricted." A "richer" understanding a "strong" sample of papers.

VERSION 2 – AUTHOR RESPONSE

Reviewer: 1

Reviewer Name: Shaminder Singh
Institution and Country: University of Calgary, Canada

Dear Dr. Shaminder Singh, thank you very much for reviewing our manuscript again. We have revised the manuscript according to all of your suggestions. Please see our more detailed revisions in the **Main Document-marked copy**. All pages and lines mentioned later are those we added in the **"Main Document-marked copy"**.

The readability and clarity have improved in this version. I would recommend the authors to review the "introduction" section and situate their advocacy appropriately for developing the measurement instruments within the scope of the manuscript. The suggestion may be an adequate recommendation for future research in the discussion section.

Response: Thank you for this suggestion. Based on this suggestion, we think it is indeed more appropriate to situate the advocacy for developing the measurement instruments in the discussion section. Therefore, we have deleted it in Introduction, and the related discussion about it had been included in Discussion. {page 20; line 12-21}

Instead, we have framed the introduction of this paper more broadly around the value that a concept analysis offers to nursing and healthcare knowledge, such as to policymakers, nursing clinicians, and researchers interested in advancing research capacity in nursing.

In the revised manuscript, the Introduction section is now organized as follows: (1) The importance of research capacity in nursing; (2) The need for a concept analysis [More studies on research capacity

in nursing, which require a better understanding of the concept, are needed]; (3) The need for a concept analysis [Nurses, nurse managers and leaders, and healthcare policymakers need to understand research capacity in nursing better]; (4) Pragmatic Utility method is appropriate for the concept analysis.

Introduction section:

The authors claimed that a valid and reliable measurement instrument is "required" to enhance research capacity in nursing. An expansion of this claim is needed. Please clarify that in the absence of a "matured" concept of research capacity, how we know that a measurement tool will be a "requirement" to enhance the research capacity? One would wonder why a measurement tool is needed uniquely for the discipline of nursing to improve its research capacity?

Response: Based on your first suggestion and this comment, we thought it would be more appropriate to situate the advocacy for developing the measurement instruments in the discussion section. In the discussion part, we have explained why such measurement tools are needed. Therefore, we have deleted the advocacy in Introduction and the related discussion about it had been included in Discussion. {page 20; line 12-21}

Please move the definition of "partially mature concept" early on page 4 when it comes first in the manuscript.

Response: We have moved the definition to where the word comes first. {page 5; line 14-16}

What was the logic behind focusing the literature review between 2009-2019? The authors stated that they "wanted to," but a reader would wonder why so? Research concepts and capacity may develop in decades.

Response: We found a study in 2009 that pointed out that the concept of research capacity had not been well defined until 2009 *(Corchön, 2009)* [This study had been cited]. So, we decided that there was no consistent definition of research capacity before 2009 and chose to include literature between 2009-2019 based on our purpose. Our purpose is to develop a definition and provide a better understanding of the meaning of the concept for present-day policy making and research programming rather than to provide the whole development history of the concept.

After we completed the concept analysis based on the literature between 2009-2019, we actually had randomly selected four eligible papers between 2000-2009 (the first paper that we found which met our inclusion criteria was published in 2000) to verify our findings of the concept analysis within the context of each of the four papers. There was no need for changing the results after we reviewed the four papers.

However, we agree with you that the exclusion of the literature before 2009 may lead to the omission of the development process before 2009. Therefore, we regarded it as a limitation. Based on your suggestion and our consideration, we revised some sentences in the manuscript's Limitations section as follow:

Secondly, literature published before 2009 and outside the six databases were not included in this study. These restrictions may have led to the omission of some relevant studies that could have revealed the earlier development of the concept. Our rationale for including literature after 2009 in this concept analysis was that we found a study pointed out that the concept of research capacity had not been well defined before 2009, [9] *and our purpose is to develop a definition and provide a better understanding of the meaning of the concept for present-day policy making and research programming rather than to provide the whole development history of the concept.* {page 21; line 7-16}

Page 3, line 26: Please explain what authors mean by "research performance in nursing remains far below expectations." How the authors define "Research Performance" and measure it? Please explain how the performance of nursing research was measured in the cited articles and with "expectations" of whom?

Response: Thank you for pointing out this concept which may make readers confused. Based on your first suggestion and this comment, we carefully reviewed the Introduction again, and we found

there were some sentences in the Introduction which were not closely related to the important ideas we wanted to express. We also found that we had introduced some unnecessary and redundant concepts (e.g., research performance) which may cause confusion. Therefore, we deleted some of the contents in the Introduction that we thought were rather tangential and may lead to confusion. Please see the Introduction in the new version of manuscript.

Page 3, line: 29-40: The nursing research is claimed to be a "new" discipline. One wondered what criterion was applied to consider nursing research is "new or old." What kind of "attention and support" required in nursing research and comparison to what discipline? Please clarify the comparison criteria of "more new areas in nursing" and "ever more nursing research needs" in point number two of the paragraph.

Response: Compared to some "relatively mature" disciplines (e.g., education, medicine), nursing is a "relatively new" discipline. However, there is no standard criterion for the classification. During the process of trying to answer your questions, we found there was no sufficient evidence to support statements 1) and 2) in Introduction of the previous manuscript. Meanwhile, as noted in the above response, we found some contents (e.g., statements 1) and 2)) were rather tangential and included some confusing concepts. Therefore, based on your comments and suggestions and our research group discussion, we finally decided to delete these unnecessary and confusing contents in the Introduction. Please see the Introduction in the new version of manuscript.

Page 3, Line 45: A reader may wonder, what are the "barriers and facilitators to improving research capacity in nursing" that the authors mentioned and cited?

Response: Barriers and facilitators are research knowledge and skills, time, funding, manager support, etc. However, based on the above suggestions and comments, we have adjusted the Introduction section a lot. This sentence has been deleted from the Introduction.

We think that a better understanding of this concept could help identify barriers to research capacity in nursing. In fact, the "antecedents" are kind of barriers and facilitators – ex. Infrastructure. So we have added this point to the discussion section briefly.

By promoting these antecedents, policymakers and nurse managers can facilitate the improvement of research capacity in nursing. However, if these antecedents are ignored, they may act as barriers to the improvement of research capacity in nursing. For instance, a lack of appropriate research infrastructure (e.g., funding, material support) is a barrier to improving research capacity in nursing. {page 19; line 12-17}

Method Section:

This section is well-written. Please define "the scoping review method" and why it was chosen for this literature review method? "Analytic questions" are defined on page 5 para 2, please bring it up in the first paragraph of the method section when it is mentioned initially?

Response: Thank you for these suggestions. We have added the definition of "scoping review method" and moved the description of "analytical questions" to where it comes first in the revised manuscript. {page 6; line 14-15}

Scoping review method is "an ideal tool to determine the scope or coverage of a body of literature on a given topic and give clear indication of the volume of literature and studies available as well as an overview (broad or detailed) of its focus". [14] {page 8; line 3-5}

The reasons for choosing the scoping review method were included in the Introduction section in the previous manuscript. Based on your question and further group discussion, we think it would be better to move the reasons (as follows) for choosing the scoping review to Method section. {page 8; line 1-11}

Ideally, a larger sample of the relevant literature may provide a more comprehensive understanding of the concept. However, the Pragmatic Utility concept analysis method does not provide a detailed description of the procedures for retrieving relevant literature.[10] The scoping review method is "an ideal tool to determine the scope or coverage of a body of literature on a given topic and give clear indication of the volume of literature and studies available as well as an overview (broad or detailed) of its focus".[14] The scoping review method offers a rigorous and replicable literature search process for collecting rich sources of secondary data.[14] Considering that systematic literature search method

used by scoping reviews can provide a large sample of papers for conducting a concept analysis, we used the literature search method of scoping review to retrieve all relevant literature for our study.[17] A scoping review of the nursing literature on research capacity in nursing can also help to explore all the contexts in which the concept is used.

Few more points to consider:

Some terms/ phrases in the manuscript are either redundant or need more clarity. Some examples are as follow, please considering reviewing within their respective contexts in the manuscript:
"deep" concept analysis
"well-validated" could be replaced with "validated."
Nursing is "a profession with a restricted practice" (Page 4, line 17). Please clarify the term "restricted."
A "richer" understanding
a "strong" sample of papers.
Response: Thank you very much for these detailed suggestions. We have reviewed our manuscript based on these suggestions, and we found that some words were indeed redundant. We have deleted them (such as "deep" and "well-" you mentioned) in the manuscript.
About "Nursing is a profession with a restricted practice", we think our emphasis of this sentence is "practicing based on evidence". Therefore, we have revised this sentence as follows:
It is also a profession whose practice should be based on evidence. {page 4; line 22} Furthermore, for "richer understanding", we have replaced "richer" with "more comprehensive". For "strong" sample of papers, we have replaced "strong" with "large".

VERSION 3 – REVIEW

REVIEWER	Shaminder Singh University of Calgary
REVIEW RETURNED	21-Oct-2019

GENERAL COMMENTS	The authors deserve applause to take the challenge of researching and writing about the complex topic of research capacity in nursing. The topic is timely and requires a broader discussion in nursing. The current version is publishable. I have learned a lot on the topic while reviewing the article, and can not wait to share it with my colleagues once it's published. Congratulations!