

PEER REVIEW HISTORY

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ARTICLE DETAILS

TITLE (PROVISIONAL)	Enablers and barriers in upscaling telemonitoring across geographic boundaries: a scoping review
AUTHORS	Gijsbers, Harm; Feenstra, Tim M; Eminovic, Nina; van Dam, Debora; Nurmohamed, S. Azam; van de Belt, Tom; Schijven, Marlies

VERSION 1 – REVIEW

REVIEWER	You, Zhiying University of Colorado Denver School of Medicine, Medicine
REVIEW RETURNED	25-Oct-2021

GENERAL COMMENTS	It is not an area I am familiar enough to assess as an expert. I did not find a complicated statistical method used except simple statistical descriptions. Given this, a statistical review is not necessary.
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REVIEWER	Day, Karen The University of Auckland, Health Systems
REVIEW RETURNED	15-Nov-2021

GENERAL COMMENTS	<p>Thank you for this opportunity to review your manuscript in which you report the process and findings of a scoping review of telemonitoring implementation upscaling. This is a well-written manuscript and it is clear that you followed a strong process and have answered your research question. The paper could be improved in the following ways.</p> <ul style="list-style-type: none">- There are several grammatical errors in which you do what I call opposites of what is grammatically correct, e.g. you write 'barrier' and 'enabler' when you mean their plural (barriers and enablers) and you use a word as a noun instead of an adjective ('Telemonitoring is strategy to digitally monitor...' when this makes better grammatical sense 'Telemonitoring is strategic to digitally monitoring...'. Please get someone to proof read your paper and ensure that the correct grammar is used without changing the meaning of what you're saying.- In the methods section you list the databases you used to search for literature but you didn't use Proquest, which is likely to contain some implementation studies that don't get published elsewhere. You did pick up some of the articles that I found in Proquest but please check that you picked them all up. Or explain why you didn't use Proquest.- In the inclusion criteria you indicate that smartphones are included but there is no mention of tablets which are frequently used in telemonitoring for data collection from biometric measurement tools. Why did you not include tablets?
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REVIEWER	Seboka, Binyam Dilla University, Health informatics
REVIEW RETURNED	01-Jan-2022

GENERAL COMMENTS	This study is unique as it will have implications for future stakeholders concerned with the design/ implementation of telemonitoring.
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	<p>However, the use of “upscaling” in the title of this paper does not fully convey the central idea of barriers and enablers of telemonitoring. So, it will be great if the authors consider modifying the title to tailor the concepts of barriers and enablers.</p> <p>Furthermore, if there is any relevant finding, it would be useful to have more information in the result of a discussion on the implications of patient condition. For example, what barriers or facilitators may exist related to specific patient conditions?.</p>
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REVIEWER	Yilma, Tesfahun University of Gondar, Health Informatics
REVIEW RETURNED	23-Jan-2022

GENERAL COMMENTS	<p>Title: Upscaling of telemonitoring across geographic boundaries: a scoping review</p> <p>This review article is aimed at identifying barriers to and enablers for upscaling telemonitoring in different settings. The article followed the JBI methodology guidance for scoping reviews. The authors used Mendel’s framework for Building Evidence on Dissemination and Implementation in Health Services Research to analyze the reviewed articles. Three domains (context of diffusion, stages of diffusion, and intervention outcomes) were used to describe the barriers of and enablers for nationwide upscaling of telemonitoring. Furthermore, the barriers and enablers were classified into six different categories of contextual factors.</p> <p>Overall, the article is written well and delivered the topic clearly. The choice of Scoping Review over other types of reviews is appropriate. The use of Mendel’s framework to analyze and structure the writing is the strong side of the article. The article also has a good contribution in identifying the barriers and enablers of telemonitoring for upscaling. Findings could help governmental and non-governmental institutions to understand the barriers and enablers so as to carefully plan telemonitoring upscaling projects.</p> <p>There are minor comments that authors need to address:</p> <p>Abstract</p> <ul style="list-style-type: none"> • Authors need to follow the JBI PRISMA ScR checklist and include the eligibility criteria <p>Introduction</p> <ul style="list-style-type: none"> • In line #10, the authors mentioned that there are pilot studies indicating the benefits of telemonitoring. However, neither citation nor explanation about the pilot studies was given. Adequate explanation or citation shall be provided. • In lines #27 – 31, authors cited Ref# 9-11 at the end of the sentence but it is not clear which reference is for WHO, EU, national governments, and other governing organizations. A citation shall be used in a place where it gives the most sense. • Please check punctuation in lines #49 and 52. • Please also check Ref #15. Not sure if the citation is needed for the sentence from lines #52 and 54. <p>Methods</p> <ul style="list-style-type: none"> • Authors claimed that they used PRISMA-ScR. However, the PRISMA checklist for a systematic review is annexed on Page 14. For example, in the annexed checklist of the Abstract section, “systematic review registration number” is indicated as a required item. The correct checklist shall be used and annexed. <p>Eligibility criteria</p> <ul style="list-style-type: none"> • Authors need to reason out why ongoing studies, conference abstracts, and posters were excluded. (Line #40) <p>Data Extraction and Analysis</p> <ul style="list-style-type: none"> • Authors indicated that any disagreements were resolved by discussion and involvement of a third researcher. It is good to explain the disagreements and how they were resolved. Make the data extraction transparent as it is required in scoping reviews. (Line #18) • Similarly, explain the differences if there were differences between the first and second researchers concerning data encoding. (Line #44)
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	<p>Discussion</p> <ul style="list-style-type: none"> • Authors need to be consistent in the referencing system. The authors used several textual referencing style in the discussion section while the numeric referencing style is being used in the entire article (e.g. Gawalko et al., Chronaki et al, Diaz-Skeete et al). <p>Referencing</p> <ul style="list-style-type: none"> • There are several incomplete, incorrect, and inconsistent references in the reference list. For example, Ref #9, 10, 11, 14, and 41. Please double-check. <p>Appendix</p> <ul style="list-style-type: none"> • The figure in appendix 3 is blurred. Need to reconstruct it with appropriate resolution. • Table 1, 2, 3, 4, and 5, and Appendix 1, 2, and 3 are repeated.
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VERSION 1 – AUTHOR RESPONSE

Reviewer #2:

Thank you for this opportunity to review your manuscript in which you report the process and findings of a scoping review of telemonitoring implementation upscaling. This is a well-written manuscript and it is clear that you followed a strong process and have answered your research question.

We would like to thank reviewer 2 for the review and reflections to our manuscript.

There are several grammatical errors in which you do what I call opposites of what is grammatically correct, e.g. you write 'barrier' and 'enabler' when you mean their plural (barriers and enablers) and you use a word as a noun instead of an adjective ('Telemonitoring is strategy to digitally monitor...' when this makes better grammatical sense 'Telemonitoring is strategic to digitally monitoring...'. Please get someone to proof read your paper and ensure that the correct grammar is used without changing the meaning of what you're saying.

We would like to thank reviewer 2 for the advice. We asked a native English speaker to proofread our paper and correct the grammatical errors.

In the methods section you list the databases you used to search for literature but you didn't use Proquest, which is likely to contain some implementation studies that don't get published elsewhere. You did pick up some of the articles that I found in Proquest but please check that you picked them all up. Or explain why you didn't use Proquest.

We were not aware of this database, and would like to thank the reviewer for this remark. We expanded our search with the use of proQuest which yielded 10 hits, unfortunately without any relevant articles. Even when the search syntax was adjusted for a more broad search, resulting in 38 hits, none were relevant for our scoping review. We have added the search to the methods and results.

Search syntax ProQuest.com	hits
(mainsubject.Exact("telemedicine") OR ab(Telemedicine) OR ab(mHealth) OR ab(EHealth)) AND (mainsubject.Exact("monitoring, ambulatory" OR "monitoring, physiologic") OR ab(monitor*) OR ab(telemonitor*) OR ab(health care)) AND (mainsubject.Exact("implementation") OR mainsubject.Exact("health plan	10 hits, none relevant

implementation" OR "implementation")) AND (ab(scale up) OR ab(implement*) OR ab(adoption)) AND (mainsubject.Exact("health policy") OR mainsubject.Exact("health policy" OR "policy making") OR mainsubject.Exact("health policy" OR "policy making" OR "national health programs") OR ab(policy) OR ab(survey) OR ab(mapping))	
(mainsubject.Exact("telemedicine") OR ab(Telemedicine) OR ab(mHealth) OR ab(EHealth)) AND (mainsubject.Exact("monitoring, ambulatory" OR "monitoring, physiologic") OR ab(monitor*) OR ab(telemonitor*) OR ab(health care)) AND (mainsubject.Exact("implementation" OR mainsubject.Exact("health plan implementation" OR "implementation")) AND (ab(scale up) OR ab(implement*) OR ab(adoption))	38 hits, none relevant

In the inclusion criteria you indicate that smartphones are included but there is no mention of tablets which are frequently used in telemonitoring for data collection from biometric measurement tools. Why did you not include tablets?

Thank you for pointing this out. Tablets were not excluded from this study and we have adjusted the manuscript accordingly.

Reviewer #3

This study is unique as it will have implications for future stakeholders concerned with the design/implementation of telemonitoring.

We would like to thank reviewer 3 for the compliment and positive feedback

However, the use of “upscaling” in the title of this paper does not fully convey the central idea of barriers and enablers of telemonitoring. So, it will be great if the authors consider modifying the title to tailor the concepts of barriers and enablers.

We have adjusted the title to “Enablers and barriers in upscaling telemonitoring across geographic boundaries: a scoping review.”

Furthermore, if there is any relevant finding, it would be useful to have more information in the result of a discussion on the implications of patient condition. For example, what barriers or facilitators may exist related to specific patient conditions?

We agree with the reviewer it would be useful to know more about upscaling of telemonitoring in relation to specific patients conditions. Our focus, however, was on the (nation)wide upscaling and the possible barriers and facilitators. Therefore, we cannot provide more information or discussion regarding patient conditions.

Reviewer #4

This review article is aimed at identifying barriers to and enablers for upscaling telemonitoring in different settings. The article followed the JBI methodology guidance for scoping reviews. The authors used Mendel’s framework for Building Evidence on Dissemination and Implementation in Health Services Research to analyze the reviewed articles. Three domains (context of diffusion, stages of diffusion and intervention outcomes) were used to describe the barriers of and enablers for nationwide upscaling of telemonitoring. Furthermore, the barriers and enablers were classified into six different categories of contextual factors.

Overall, the article is written well and delivered the topic clearly. The choice of Scoping Review over other types of reviews is appropriate. The use of Mendel’s framework to analyze and structure the writing is the strong side of the article. The article also has a good contribution in identifying the

barriers and enablers of telemonitoring for upscaling. Findings could help governmental and non-governmental institutions to understand the barriers and enablers so as to carefully plan telemonitoring upscaling projects.

There are minor comments that authors need to address:

We would like to thank reviewer #4 for the critical review and comprehensive comments on our manuscript.

Authors need to follow the JBI PRISMA ScR checklist and include the eligibility criteria

Thank you for this remark, we have adjusted the manuscript accordingly.

In line #10, the authors mentioned that there are pilot studies indicating the benefits of telemonitoring. However, neither citation nor explanation about the pilot studies was given. Adequate explanation or citation shall be provided.

Thanks for pointing out this important detail. The correct citation has been erroneously omitted here. In line 10 reference should be made to Farias, 2019. This systematic review concludes that "telemonitoring appears to maximize patient care and effectiveness of treatment"

In lines #27 – 31, the authors cited Ref# 9-11 at the end of the sentence but it is not clear which reference is for WHO, EU, national governments, and other governing organizations. A citation shall be used in a place where it gives the most sense.

We have adjusted the references with highlights in the text.

Please check punctuation in lines #49 and 52.

We have adjusted the punctuation

Please also check Ref #15. Not sure if the citation is needed for the sentence from lines #52 and 54.

This citation refers to the article by Munn et al. with a guidance for the decision to perform a systematic review or scoping review. We therefore believe that this reference is appropriate here.

The authors claimed that they used PRISMA-ScR. However, the PRISMA checklist for a systematic review is annexed on Page 14. For example, in the annexed checklist of the Abstract section, "systematic review registration number" is indicated as a required item. The correct checklist shall be used and annexed.

Thank you for your remark. We used the wrong checklist. The correct checklist is annexed.

Authors need to reason out why ongoing studies, conference abstracts, and posters were excluded. (Line #40)

The information contained in conference abstracts, poster presentations is not considered peer-reviewed. They are not subject to the same rigorous peer-review process as journal articles. Thus, we decided to exclude these types of publications. We made minor textual adjustments and highlighted them in our manuscript.

The authors indicated that any disagreements were resolved by discussion and involvement of a third researcher. It is good to explain the disagreements and how they were resolved. Make the data extraction transparent as it is required in scoping reviews. (Line #18)

There was only one disagreement during the selection of studies that required discussion with a third reviewer. There were studies that measure blood pressure at home, but the monitored data was not transmitted digitally via (smart)phone, tablet and/or Internet to a hospital. After discussion

with the third reviewer, these studies investigating this form of home measurement have not been included in our scoping review. We added two lines on page 13 /14 to make this transparent.

Similarly, explain the differences if there were differences between the first and second researchers concerning data encoding. (Line #44)

We agree with reviewer #4 that it is good to be transparent when it comes to differences in coding. Unfortunately we did not perform an agreement score for coding. We referred to this in our discussion, as it could be a limitation to this study. However, no significant differences were identified between the first and second reviewer, and it is therefore unlikely that this resulted in bias.

Authors need to be consistent in the referencing system. The authors used several textual referencing style in the discussion section while the numeric referencing style is being used in the entire article (e.g. Gawalko et al., Chronaki et al, Diaz-Skeete et al).

We have modified the references to numerical citations.

There are several incomplete, incorrect, and inconsistent references in the reference list. For example, Ref #9, 10, 11, 14, and 41. Please double-check.

These references were all reports or webpages. We adjusted the reference list.

The figure in appendix 3 is blurred. Need to reconstruct it with appropriate resolution.

VERSION 2 – REVIEW

REVIEWER	Day, Karen The University of Auckland, Health Systems
REVIEW RETURNED	18-Feb-2022

GENERAL COMMENTS	<p>Thank you for making the recommended changes. The paper reads much better now.</p> <p>A system outcome worthy of reflection is inequities created/perpetuated by the use of information systems such as telehealth. Those who don't have access to the technology and or infrastructure required for successful telehealth could be left out of any upscaling efforts. Did this come up at all in the review? If not, it would be useful to briefly comment on it in the discussion.</p>
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REVIEWER	Seboka, Binyam Dilla University, Health informatics
REVIEW RETURNED	03-Mar-2022

GENERAL COMMENTS	Author fully addressed the comments.
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VERSION 2 – AUTHOR RESPONSE

We would like to thank the reviewer Karen Day for her relevant last comment on health (in)equity. Although it was not the scope of our review, we agree that this is relevant to reflect on. Therefore, we added this following comment in the discussion of our manuscript:

An untouched topic in this scoping review is the potential change in health (in)equity created or perpetuated by the scale-up of telemonitoring projects. After all, those without access to the technology and/or infrastructure necessary for successful telehealth may be left out of any scale-up efforts. A

retrospective cohort during the Covid-19 pandemic shows that inequities in telehealth utilization persist and require ongoing monitoring. In this review, lack of resources and infrastructure are key factors that not only impede scale-up, but can also cause health inequities. Information and education strategies appear to be important enablers for scale-up, but they are also successful strategies for reducing health inequities.