Peer Review File

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Reviewer A

A well conducted, methodologically sound scoping review of a very important topic. Please see following suggestions and comments:

1) Suggest being more explicit about the inclusion criteria for mHealth interventions in the methodology. How is mHeath intervention defined? The authors have given a list in the introduction, of examples of mHealth interventions but these should be more explicitly defined under methodology. If there is a formal definition of mHealth that would be even better but there might not be. Would mHealth also include things like implantable loop recorder for cardiac arrhythmias?

Reply 1: Thank you for highlighting this. As you have already identified, a universally accepted definition of mHealth is lacking, however, we have made this plainer in our introduction (page 1, lines 67-71) and have explicitly defined mHealth per our criteria in the methods section (pages 2-3, lines 94-97). By our definition, wearable devices would be included.

Changes in text:

Introduction*: Although mobile health (mHealth) applications are related to a broad range of interventions and lack a universally accepted definition, the digital health division of the World Health Organization defines mHealth as the "medical and public health practice supported by mobile devices, such as mobile phones, patient monitoring devices, personal digital assistants, and other wireless devices" (14, 15).*

Methods: *We defined mHealth as the practice of medicine supported by portable diagnostic devices to provide services that facilitate health prevention and intervention via short-messaging-service (SMS), smartphone applications, handheld-imaging platforms, wearable devices, and miniaturized sensor-based technologies (21).*

2) A comment on stroke recurrence. It is usually the highest after first few weeks to months following a TIA or minor stroke. If an intervention is to have an effect on risk of stroke recurrence, the best time to intervene might be early on rather than wait until the chronic stage as by then, the increased stroke recurrence risk may have already plateaued.

Reply 2: Very relevant point; recurrent stroke risk is highest within the first 3 months after initial stroke and we agree that any intervention designed to reduce this recurrence rate should be trialed in the subacute period. Lines 52-54 do highlight this fact. (*At least one quarter of the approximately 800,000 strokes that occur annually in the United States are recurrent events, with the* ***highest risk of recurrence*** *or of myocardial infarction or death from vascular events* ***within the first three months after index stroke*** *(1-3).)* We were surprised that most of the trials (that were targeting vascular risk factors) we found were among patients in the chronic phase. Although recurrence is highest right after the index stroke, stroke risk overall is cumulative and therefore, continuing to improve chronic conditions eg diabetes, depression, hypertension, etc should still reduce an individual's stroke risk. We acknowledge that an accurately powered trial looking at recurrent stroke events as the primary aim is challenging when considering treating isolated vascular risk factors.

Changes in text:

Discussion:

Page 8, lines 218-219: *Furthermore, most studies occurred in the chronic phase (> 6 months from stroke event), well after the highest risk of stroke recurrence period has passed* (1).

Page 10, lines 270-274: *This review illustrates that mHealth for secondary stroke prevention remains understudied and also supports the critical need to design and complete RCTs utilizing different mHealth platforms with the specific aim to decrease recurrent stroke rates, especially in the highest risk period (< 3 months post-stroke).*

3) I agree with the authors' conclusion. I would just add that, apart from risk of stroke recurrence, there are many potential clinically relevant outcomes that are important to stroke patients which could be targeted by mHealth interventions e.g. anxiety, depression, functional outcome.

Reply 3: We 100% agree. There is a broad range of potential targets for the overall improved outcomes in stroke patients addressable by mHealth (eg coordinated care of appointments, question lines, medication checks, etc, etc). To help underscore this point further we have made the following adjustments to the discussion.

Changes in text:

Discussion:

Page 10, lines 265-268*: Although mHealth may still prove to be a powerful way to address other clinically relevant targets (mood, daily living or functional outcomes), this lack of emphasis on secondary stroke prevention lays bare the gap in evidence addressing this population.*

Reviewer B

The authors are to be commended for completing this scoping review of m-Health and recurrent stroke prevention. Three comments for authors to address

1. Authors did not seem to include in their bibliography (references section) all the studies shown in Table 1. Was this an oversight? It's difficult to follow the results because they are presented without citing the specific studies mentioned in Table 1. For instance, when authors mention that 6 studies looked at ....., the six studies should be referenced to direct the audience to it on the Table 1 and in the reference section and so forth.

Reply 1: Thank you for highlighting this oversight. We have now appropriately included the studies in the bibliography and have referred to the applicable studies in the body of the manuscript.

Changes in text:

We have applied specific references of the reviewed article throughout the results and discussion sections. Pages 5-7.

2. The title could be tweaked a bit to sound a bit more positive. The authors reviewed 18 studies out of which 12 met the primary outcome (66%), yet presents the data in a less than enthusiastic tone. It is also commendable that studies from Africa is included in this review. I agree there's more room for improvement in harnessing the potential of mHealth for stroke survivors.

Reply 2: We appreciate your point and would like to strike a more nuanced tone.

Changes in Text: We have changed our title to "mHealth Utilization Among Stroke Survivors; Potential and Current Applications".

3. The authors reported only the month 3 outcomes for the work by Sarfo et al, however the final outcomes at month 9 has been reported

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Reply 3: Thank you for catching this. We have since changed our table and reference section to reflect the 9 month (full study period) findings.

Reviewer C

This is a methodology sound scoping review. Detailed and rigorous methods are well described. Also, the discussed topic is important. Congratulations to the authors. Below please see some minor suggestions.

1. It is great that the authors have added "scoping review" in the title to identify the study design and also apply an objective tone. I suggest the authors further refining the title to highlight the strengths of the article.

For the authors' reference, e.g. "A Scoping Review of RCTs on mHealth Utilization Among Stroke Survivors:xxx ", "xxx of mHealth Utilization Among Stroke Survivors: a scoping review on xx between 2010-2020".

1a Response: Thank you for this helpful suggestion. We have modified the title accordingly*: mHealth Impact on Secondary Stroke Prevention; a Scoping Review of RCTs Among Stroke Survivors between 2010-2020.*

2. I suggest the authors indicating in the abstract that only English literature are included, as presented in the results that the authors excluded all non-English literatures.

2a Response: Thank you for catching this. We have added "published in English" to the abstract.

3. It is great that the authors have clearly define "mhealth" and cited evidence. However, I suggest authors also defining the key concept "recurrent stroke" in the manuscript, and also presenting in an evidence-based manner.

3a Response: Thank you, we have clarified the generally accepted definition in the introduction lines 73-75:

Recurrent stroke is typically defined as a new focal neurological deficit otherwise meeting the standard definition of stroke that occurs at least 24 hours following clinical stability of index stroke(4).

4. Please reassure the study design, whether a scoping review OR a systematic review. Usually, a scoping review does not use Cochrane RoB tool to review the methodology

quality. However, I suppose the authors may aim to do a scoping review, as they did not give the classic RoB red/yellow/green figure required for a systematic review. Then, please revise the text in figure 1 “Full-text articles of included studies in systematic review”. Use “scoping review”, consistently.

4a Response: Thank you for underscoring the importance of accurate language. We have reformatted the text in the figure to reflect “scoping” rather than systematic.

5. According to table 1, the total number of eligible participants is 1,415, not 1,083 (line 148). Would the authors re-check the data? Also, what does the “38 couples” in the table mean? Do you mean the N is 76? I recommend the authors consider present the data clearer.

5a Response: Yes, thank you for pointing out this inconsistency. We have re-tabulated all the individual participants and reflected the accurate number “1,453” in the text. The one study involved both male stroke survivors and their caregivers (typically their partners). Outcomes were applied to both groups so actually stating 76 participants is clearer and we have changed the table also to reflect that.

6. Many abbreviations are not listed in the table legends, e.g. SMS, CPAP, ETNS, M-F, SITT, QOL, BP, VRSS, CES, PT, SBP, CPAP. Please double check all table legends and figure legends.

6a Response: Thank you, we regret this lack of clarification. We have added a legend for all abbreviations in the table.