Author’s response to reviews

Title: Mobile tablet-based therapies following stroke: a systematic scoping review protocol of attempted interventions and the challenges encountered

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Author’s response to reviews:

Thank you for taking the time to review this manuscript and offer comments. Although this review already begun between the time the protocol was submitted and reviewer feedback was received, we have incorporated your feedback where possible.

Reviewer #1:

“Overall the rationale is well written, however, it should be shortened since the points of stroke impact, the need for early rehabilitation and limitations of existing rehabilitation services could be summarized into 1-2 paragraphs. In addition, the authors should add more about the advantages of using technology such as tablets e.g. gaming effects.”

The rationale section was shortened by condensing the section on stroke impact, the need for early rehabilitation, and challenges accessing stroke rehabilitation into two paragraphs. Information about the positive impact of technology on rehabilitation outcomes were added.

“The references list contains some old references that should be updated especially when discussing statistics about stroke outcomes or rehabilitation. For example please update references 7 & 8, 13 & 14, 19 and 21 to a more recent references.”

The specified references remaining in the introduction were replaced with more recent publications.
Reviewer #2:

“Severity of the problem/disability could also be considered - Minor, moderate according to NIH stroke scale? Severely disabled will not be able to independently use MTBT” and other comments regarding inclusion/exclusion criteria.

Unfortunately, the NIH stroke scale does not have established cut-offs for mild-to-moderate severity and not all studies use the NIHSS. After considering the goals of the review, we decided to accept study author’s definitions of mild-to-moderate stroke severity in order to be inclusive and capture the full scope of the field. Similarly, the comparator, outcome and study design criteria were kept broad to improve the chances of including all relevant articles from what we expect to be a somewhat small collection of literature. However, these comments are well-taken and we have revised the main text of the manuscript and article screening form to clarify the definition of mobile tablet-based therapies, clarify the listed inclusion/exclusion criteria, and clarify the criteria explanation and elaboration section (clarified the context, added specific possible comparators and eligible study designs.)

“This won't be a good idea to come to conclusions based on results from abstracts - especially when you are looking for challenges/barriers which will differ from context to context and study to study.”

This is a very good point and we agree that abstracts do not provide enough context to fully understand some of the outcomes we wish to capture. However, in the interest of scoping the entire field, we feel it is necessary to include abstracts in this review. However, we have added a sentence under “Study designs” stating the included studies will be clearly indicated as full-text articles, abstracts, or protocols accordingly so that readers may understand certain extracted information lack full context.

“Please take at least from 2000 because you are at the start of this century which is not very far from 2017.”

Regarding this, our goal was to focus on modern mobile tablet computers which could potentially be used for upcoming randomized controlled trials. Although there are few clear lines or turning points in the development of mobile technology, the release of the enormously popular iPad in 2010 seems to mark the beginning of the modern era of mobile tablet designs. However, after reviewing this comment it became apparent that this should be specifically stated in the manuscript. Accordingly, we have elaborated on our justification in the main text.
“Strategy is very narrow. Why not include barriers, smartphone, mhealth, technology, therapy, rehabilitation, etc.”

The search strategy was designed to include all studies involving stroke patients and tablets regardless of comparators, outcomes, and setting. During the development of the search strategy, many of the suggested additional search terms (“barriers, smartphones, mhealth, technology, therapy, and rehabilitation”) were used and their inclusion (depending “AND”/”OR” operators) appeared to either greatly increased the number of irrelevant articles or greatly reduce the total number of returned articles. However, by not including these terms we accept that we may have missed relevant articles. We understand this as a limitation of our search strategy and will be noted in the limitations section of the final manuscript.

“I strongly recommend the assessment of methodological quality of the studies included in the review. You can use STROBE and other appraisal tools to do this. CASP site would be helpful”

Although considered, we decided against including a quality assessment of the including studies after consulting the most current systematic scoping review guidelines which were used to guide the development of this protocol: “scoping reviews are designed to provide an overview of the existing evidence base regardless of quality. Hence, a formal assessment of methodological quality of the included studies is generally not performed” [1]. However, we acknowledge this as a short-coming of current scoping review study designs and the lack of quality of assessment will be discussed in the limitations sections of the final manuscript.


Reviewer #3:

“The structure and purpose of the review is clear. However, the literature reviewed outlining the use of MTBT seems mainly limited to US and Canada and consequently refers to in and out patient rehab. The article would have broader appeal if community based rehab (e.g. as done in UK) was considered. It is important to recognise that access to beds does not limit access to rehabilitation (as stated on page 4) as rehab can occur outside of the hospital setting and indeed does do so in many healthcare settings. This argument may also be better framed by discussing the use of MTBT as adjuncts to therapy, not as a replacement when therapy is not available. This could also lead to discussion of the time therapists are able to spend with patients and how
technology may provide extra "therapy time" without a therapist being present. In my experience, this is how many mobile technologies are intended to be used."

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Thank you, these are very helpful points. We have revised the introduction in order to specifically mention community based rehab, removed the statement regarding limited access to beds, and adjusted the re-framed the argument to discuss mobile technologies as adjunctive therapies and not replacements for therapist-led rehabilitation.

“Method: (P.7) I am unclear why there is a distinction between mobile tablets and smart phones - I would suggest including both as most have similar applications. Alternatively, a clear distinction and rationale why smart phones are not included as the primary MTBT device should be provided. Similarly the first "smart phones" have been available since the mid to late 1990s - if they are included, the search criteria would have to be amended to reflect this (ie from 2010 to 1994).”

The motor and cognitive deficits suffered by stroke survivors likely makes manipulating small touchscreen devices like smartphones difficult, whereas tablets offer much larger touchscreen interfaces and peripheral tablet stands which may facilitate their usability while minimizing frustration. Additionally, because tablets are actively being explored and trialled at medical institutions, we felt a review focused solely on tablet-based therapies would to inform these studies. However, after reviewing this comment we realized this was not clearly stated. We have revised the introduction and methods to more clearly define mobile table-based therapies and why we have decided to exclude smartphones as well as an elaborated justification for limiting our search from 2010 onwards.

“Results : Much of the data is likely to be qualitative in nature and so a narrative review is appropriate. However, it would be good to state how qualitative data will be handled - e.g. how will themes be developed, analysed and verified? which theoretical framework will be used? This is needed to ensure that patient interviews/perceptions etc are thoroughly represented.”

The “Data” section has been revised to more thoroughly describe how qualitative data will be organized into themes and presented.