BMJ Open publishes all reviews undertaken for accepted manuscripts. Reviewers are asked to complete a checklist review form (http://bmjopen.bmj.com/site/about/resources/checklist.pdf) and are provided with free text boxes to elaborate on their assessment. These free text comments are reproduced below.

**ARTICLE DETAILS**

<table>
<thead>
<tr>
<th>TITLE (PROVISIONAL)</th>
<th>What follow-up interventions, programmes and pathways exist for minor stroke survivors after discharge from the acute setting? A scoping review</th>
</tr>
</thead>
<tbody>
<tr>
<td>AUTHORS</td>
<td>Crow, Jennifer; Savage, Matthew; Gardner, Lisa; Hughes, Catherine; Corbett, Ceile; Wells, Mary; Malhotra, Paresh</td>
</tr>
</tbody>
</table>

**GENERAL COMMENTS**

Thank you for the opportunity to review this scoping review of follow-up interventions for patients with minor stroke. Overall, this study is highly relevant for clinical practice and the scoping review approach is an suitable method for exploring a research field as diverse as this.

The scientific quality of the study is acceptable, although the manuscript needs some revision before it is ready for publication.

1. In the methods section it is stated that studies with primarily TIA patients were excluded, but in the results section TIA is mentioned as one of the synonyms for minor stroke. This seems inconsistent.
2. The clinical distinction between TIA and minor stroke is often arbitrary (see https://pubmed.ncbi.nlm.nih.gov/19423857/ for reference) and a lot of patients with a TIA diagnosis experience cognitive impairments (Fens et al. 2013). From a clinical point of view it could be argued that patients with TIA and minor stroke discharged home would be in need of the same follow-up. I would therefore recommend that the rational behind the decision of exploding patients with TIA is either explained in the methods section or discussed under limitations.
3. The search strategy should be included in the manuscript and not just in the protocol.
4. Potential limitations to the search strategy should be discussed under limitations (could you have missed any relevant studies?)
5. A few aspects of the selection process seem a bit unclear to me - discussing potential problems with the selection process under limitations might solve this (the main question here would be if you excluded any relevant studies due to an imbalance between the purpose and the eligibility criteria).

There are a few publications which I would consider relevant according to your purpose, but might have been excluded due to the eligibility criteria (e.g https://pubmed.ncbi.nlm.nih.gov/19900646/; https://pubmed.ncbi.nlm.nih.gov/19010943/; https://pubmed.ncbi.nlm.nih.gov/16410202/).
This might not be a methodological problem, but should be acknowledged as a potential limitation.

6. Table 1 needs proof reading.

7. The text in both Table 2 and Table 3 is too small and is close to unreadable when printed. Both tables should be properly formatted.

8. Considering the body of evidence presented in the manuscript, the discussion section should include reflections on the clinical implications or recommendations for clinical practice.

9. The reference list needs proof reading.

REVIEWER
Nakano, Wataru
Tokoha University

REVIEW RETURNED
10-Jan-2023

GENERAL COMMENTS
Thank you for the opportunity to review this article. The manuscript is well-designed and carefully reported according to the recommendations of the PRISMA-ScR guidelines. I have only one minor comment:

Regarding the statement on page 15, line 38, that "secondary prevention and education is currently prioritized over the hidden impacts experienced and adjustment to life after stroke," it may be helpful to clarify the scope of the nine papers listed in Table 2 that address hidden impairments. This would help readers understand the scope of follow-up interventions currently in place for patients with minor strokes.

REVIEWER
Ashizawa, Ryota
Seirei Mikatahara Hospital

REVIEW RETURNED
02-Mar-2023

GENERAL COMMENTS
This study is interesting because it investigates the nature and effectiveness of follow-up interventions for patients with minor stroke. It needs to be modified to make it more understandable.

Physical activity and sedentary behaviour are considered important factors for secondary prevention. The current scoping review did not employ studies with physical activity and sedentary behaviour as outcomes, but is this intentional? Beatriz Rodríguez-Roca et al., Int J Environ Res Public Health. 2021


Masashi Kanai et al., Effect of accelerometer-based feedback on physical activity in hospitalized patients with ischemic stroke: a randomized controlled trial. Clinical rehabilitation. 2018

Ryota Ashizawa et al., Approaches to Promote Reduction in Sedentary Behavior in Patients With Minor Ischemic Stroke: A Randomized Controlled Trial. Arch Phys Med Rehabil. 2022

'At least half of the study population had minor strokes (mRS ≤2) and had been admitted to hospital', but are not all the subjects in the papers used in this study minor stroke patients? If patients who
do not have minor strokes are included, the title and purpose seem inappropriate.

Although this study is a scoping review rather than a systematic review, shouldn't it include what keywords were searched for?

The definition of follow-up needs to be clarified. Clarifying whether it is an intervention during hospitalisation or after discharge from hospital could sharpen the reader's interpretation.

Are the results obtained in this study in line with the objectives? The objective states that the study is "to identify the breadth and range of follow-up interventions currently provided to people after minor stroke", but is it clear? Although it is a scoping review, shouldn't it describe what interventions were available and what were the effects from the extracted papers?

**VERSION 1 – AUTHOR RESPONSE**

Reviewer #1:

1. In the methods section it is stated that the studies with primarily TIA patients were excluded, but in the results section, TIA is mentioned as one of the synonyms for minor stroke. This seems inconsistent.

   Thank you for highlighting this. The existing terminology and definitions used for TIA and minor stroke across services are inconsistent. The objective of this scoping review was to focus on those that have an inpatient stay and leave hospital with a diagnosis of minor stroke rather than those managed exclusively in outpatient clinics. However, it is challenging to know whether the participants included in a study are TIA or minor stroke without looking at the participant characteristics. When developing our search strategy, we found that when including TIA in search terms we often found studies that had stroke and TIA in the title or abstract. In reviewing the participant characteristics of these studies, the majority of participants were often people with minor stroke. Examples are provided below.


   Furthermore, in preliminary reviews of the data, we found that the follow-up interventions described as being for TIA pts only were often applied to those that did not have an inpatient stay. To acknowledge the concern, you have raised we have now included in the limitations that whilst studies included were based on authors' local criteria for TIA and minor stroke this could potentially lead to inconsistencies.

   In the discussion section of the manuscript:

   A limitation of this scoping review relates to the inconsistent terminology and definitions used for 'minor stroke'. We attempted to be as thorough as possible in the search terms we used but it is possible that our search strategy could have inadvertently resulted in some relevant studies being missed (Reference included in main document: Allen et al, 2009, Joubert et al, 2009, Wan et al, 2016). Studies included were based on authors local definitions of TIA and minor stroke which could lead to inconsistencies in the included studies. The search terms used aimed to focus the search on follow-up provided to people after minor stroke but in so doing we may have compromised the breadth of the search by missing relevant studies targeted at all people with stroke. The focus on post-discharge interventions also meant that interventions commenced in the acute setting and continued in the community were not eligible (Reference included in main document: Ashizawa et al, 2022).

2. The clinical distinction between TIA and minor stroke is often arbitrary (see https://pubmed.ncbi.nlm.nih.gov/19423857/ for reference) and a lot of patients with a TIA diagnosis...
experience cognitive impairments (Fens et al. 2013). From a clinical point of view, it could be argued that patients with TIA and minor stroke discharged home would be in need of the same follow-up. I would therefore recommend that the rationale behind the decision of exploding patients with TIA is either explained in the methods section or discussed under limitations.

Thank you for this useful comment. We are of the opinion that ‘It is time to retire the concept of Transient Ischemic Attack’ – Easton and Johnston pE1
https://jamanetwork.com/journals/jama/fullarticle/2789150
However, this remains a topic for debate and we chose not to address this in the current review. Current clinical services are often not commissioned to provide follow-up beyond secondary prevention to people after TIA. Where stroke follow-up services exist, they generally focus on those with more moderate to severe strokes and people with minor stroke are deemed ‘too good’ for these services. We have now included an explanation as to why the decision was taken to exclude TIA patients in the methods section and have included further discussion around this in the limitations.

Change made in the introduction:
Given the rapid increase in research publications in this area and the specific focus of the recent scoping review by Kontou and colleagues, it was felt that a new overview of all follow-up provided was justified. Within this review our definition of follow-up refers to interventions, other than routine medical follow-up delivered once the person with minor stroke has left hospital. It does not include interventions delivered in hospital nor early supported discharge or community stroke therapy services provided to those with obvious physical, cognitive or psychological impairments. The focus of this review is on those with a diagnosis of minor stroke who are frequently considered ‘too good’ for existing stroke services. The main objective of this scoping review is to identify the breadth and range of follow-up interventions currently provided to people after minor stroke, and questions will focus on:

Change made in the methods section:
Studies were excluded if the population was >50% moderate or major stroke or TIA. Existing community therapy services tend to focus on those with obvious impairments following their stroke, and clinical services are often not commissioned to provide follow-up beyond secondary prevention for people after TIA. Solely pharmacological interventions and studies that reported only cardiovascular scores, biomedical markers or hospital readmission outcomes were excluded.

Change made in the strengths and limitations of this study:

☐ The lack of consensus on the definition of minor stroke and our decision to exclude studies where the majority of participants had a diagnosis of TIA could be viewed as a limitation. It is possible that some studies with the population of interest were missed because of this.

Changes made in the discussion section
The lack of a universally agreed definition for minor stroke continues to create challenges at the bench and the bedside. From a research perspective, inclusion criteria remain variable in minor stroke studies, and in studies targeting all people after stroke, participants are in some instances largely minor stroke.

3. The search strategy should be included in the manuscript not just in the protocol.

Thank you for highlighting this, as did the editor. We have now included the full search strategy as supplementary file 2 which is attached to this email and submitted with all the manuscript documentation.

Change made in Methods to address this:
The search strategy was published with the registered protocol and can now be found in supplementary file 2.

4. Potential limitations to the search strategy should be discussed under limitations (could you have missed any relevant studies?)

Yes, it is possible that we could have missed relevant studies. We have now addressed this in the limitation sections as described in the responses to your questions 1 and 2.

5. A few aspects of the selection process seem a bit unclear to me - discussing potential problems with the selection process under limitations might solve this (the main question here would be if you excluded any relevant studies due to an imbalance between the purpose and the eligibility criteria). There are a few publications which I would consider relevant according to your purpose, but might have been excluded due to the eligibility criteria (e.g https://pubmed.ncbi.nlm.nih.gov/19900646/; https://pubmed.ncbi.nlm.nih.gov/19010943/; https://pubmed.ncbi.nlm.nih.gov/16410202/; https://pubmed.ncbi.nlm.nih.gov/27371106/; https://pubmed.ncbi.nlm.nih.gov/29321134/; https://pubmed.ncbi.nlm.nih.gov/24073080/). This might not be methodological problem, but should be acknowledged as a potential limitation.

Thank you for taking the time to list these references which we have reviewed to determine if we missed or excluded them due to potential problems with our selection process and/or an imbalance between the purpose and the eligibility criteria. We have now acknowledged this as a potential limitation in our manuscript. Our attempts to focus specifically on follow-up interventions for people with minor stroke may have impacted our ability to find the full breadth of follow up interventions currently reported. It is possible that in an effort to keep our population focused on follow-up services for people with minor stroke (who currently fall into a gap) we missed interventions that were targeted at all stroke survivors and included participants with minor stroke. I have cited three of the studies you highlighted that fall into this category. When reviewing the participant characteristics, we found this in three of the publications you listed (Allen et al, 2009; Joubert et al, 2009; Wan et al, 2016).

We have now raised this a limitation in the discussion and it:

A limitation of this scoping review relates to the inconsistent terminology and definitions used for 'minor stroke'. We attempted to be as thorough as possible in the search terms we used but it is possible that our search strategy could have inadvertently resulted in some relevant studies being missed (Reference included in main document: Allen et al, 2009, Joubert et al, 2009, Wan et al, 2016). Studies included were based on authors local definitions of TIA and minor stroke which could lead to inconsistencies in the included studies. The search terms used aimed to focus the search on follow-up provided to people after minor stroke but in so doing we may have compromised the breadth of the search by missing relevant studies targeted at all people with stroke. The focus on post-discharge interventions also meant that interventions commenced in the acute setting and continued in the community were not eligible (Reference included in main document: Ashizawa et al, 2022).

6. Table 1 needs proof reading.

This has now been done, further information has been added to describe the breakdown of TIA and minor stroke as requested by reviewer #2.

7. The text in both Table 2 and Table 3 is very small and is close to unreadable when printed. Both tables should be properly formatted.
We have increased the font size from 5 to 8, which makes the text more readable and have reformatted both tables, this can be seen in the revised Main Document. Table 2: Intervention components has now been moved to supplementary material 4, as requested by the editor’s office. Table 3 is now labeled as Table 2 (Outcome measures used) in the main document.

8. Considering the body of evidence presented in the manuscript, the discussion section should include reflections on the clinical implications or recommendations for clinical practice.

Thank you for highlighting this. We have now included reflections on the clinical implications and recommendations for clinical practice.

There are a number of implications for clinical practice from this review. There needs to be enhanced focus on family involvement in follow-up interventions. Clinicians targeting behavioural change, need to understand the underpinning theory and have training in the behavioural change techniques they are utilising in practice. Clinicians and service providers need to consider what training and skill sets are required to provide holistic follow-up. A focus on improving communication between secondary and primary care is crucial as both are critical in risk reduction and early adjustment to life after minor stroke.

9. The reference list needs proof reading.
We have now gone through the reference list to ensure there are no errors.

Reviewer #2
1. Regarding the statement on page 15, line 38, that “secondary prevention and education is currently prioritized over the hidden impacts experienced and adjustment to life after stroke,” it may be helpful to clarify the scope of the nine papers listed in Table 2 that address hidden impairments. This would help readers understand the scope of follow-up interventions currently in place for patients with minor strokes.

Thank you for this very helpful suggestion which we have now included in the manuscript. This provides a clearer picture of the scope of follow-up interventions that address hidden impacts experienced and adjustment to life after stroke. A detailed description of the intervention components can also be found in supplementary file 3.

There is also uncertainty regarding what the intervention key components should be; secondary prevention and education are currently prioritised over the hidden impacts experienced and adjustment to life after stroke. Nine of the papers in supplementary file 4 referred to hidden impacts but input varied from a 1 hour lecture on psychological coping strategies, 51 to screening and onward referrals to psychology and relevant community therapies. Accessing psychological support after stroke is a number one research priority and yet psychology involvement and onward referrals were lacking in many of the interventions reviewed. Cognitive impairment after minor stroke is widely reported and yet only one intervention, delivered by an occupational therapist and neuropsychologist, had post-stroke cognition as its focus.

Reviewer #3
1. This study is interesting because it investigates the nature and effectiveness of follow-up interventions for patients with minor stroke. It needs to be modified to make it more understandable.
Thank you for highlighting that modification is needed to the manuscript to make it more understandable. We have acted on your recommendations below and those of the other reviewers and believe that this has made the manuscript clearer to readers.

2. Physical activity and sedentary behaviour are considered important factors for secondary prevention. The current scoping review did not employ studies with physical activity and sedentary behaviour as outcomes, but is this intentional? Beatriz Rodríguez-Roca et al., Int J Environ Res Public Health. 2021; Victor E Ezeugwu et al., The Feasibility and Longitudinal Effects of a Home-Based Sedentary Behavior Change; Masashi Kanai et al., Effect of accelerometer-based feedback on physical activity in hospitalized patients with ischemic stroke: a randomized controlled trial. Clinical rehabilitation.2018; Ryota Ashizawa et al., Approaches to Promote Reduction in Sedentary Behavior in Patients With Minor Ischemic Stroke: A Randomized Controlled Trial. Arch Phys Med Rehabil. 2022

Thank you for this interesting comment and for highlighting these papers. This scoping review did consider physical activity as one of the outcome measures of interest in the inclusion criteria. Studies to include at least one of the following outcomes of interest; stroke knowledge, cognition, mood, medication adherence, fatigue, physical activity measures, lifestyle changes, quality of life, activities of daily living, participation, self-efficacy, self-management, economic evaluations. However, as you have highlighted sedentary behaviour was not specifically mentioned as an outcome measure of interest. Despite this we did come across the Ashizawa study that you have listed but did not include it because the intervention started in the hospital. We have acknowledged this in the limitations below. (Bold red)

A limitation of this scoping review relates to the inconsistent terminology and definitions used for ‘minor stroke’. We attempted to be as thorough as possible in the search terms we used but it is possible that our search strategy could have inadvertently resulted in some relevant studies being missed (Reference included in main document: Allen et al, 2009, Joubert et al, 2009, Wan et al, 2016). Studies included were based on authors local definitions of TIA and minor stroke which could lead to inconsistencies in the included studies. The search terms used aimed to focus the search on follow-up provided to people after minor stroke but in so doing we may have compromised the breadth of the search by missing relevant studies targeted at all people with stroke. The focus on post-discharge interventions also meant that interventions commenced in the acute setting and continued in the community were not eligible (Reference included in main document: Ashizawa et al, 2022).

3. ‘At least half of the study population had minor strokes (mRS ≤2) and had been admitted to hospital’, but are not all the subjects in the papers used in this study minor stroke patients? If patients who do not have minor strokes are included, the title and purpose seem inappropriate.

You have highlighted a very important challenge with this area of research which is that we do not have universally agreed terminology and definitions for minor stroke (See also response to Reviewer 1, point 1). This makes it difficult to be certain that all participants in the studies are in fact minor strokes. We believe that the majority of participants included in the review are minor stroke based on their NIHSS and mRS scores. Based on the concern you have raised we revised Table 1 to make this clearer and we have included the percentage of TIA vs minor stroke and NIHSS and mRS scores when these were reported. In addition, the introduction has been changed as below:

Change made in the introduction:
Given the rapid increase in research publications in this area and the specific focus of the recent scoping review by Kontou and colleagues, it was felt that a new overview of all follow-up provided was justified. Within this review our definition of follow-up refers to interventions, other than routine medical follow-up delivered once the person with minor stroke has left hospital. It does not include interventions delivered in hospital nor early supported discharge or community stroke therapy services provided to those with obvious physical, cognitive or psychological impairments. The focus of this review is on those with a diagnosis of minor stroke who are currently considered ‘too good’ for existing stroke services. The main objective of this scoping review is to identify the breadth and range of follow-up interventions currently provided to people after minor stroke, and questions will focus on:

4. Although this study is a scoping review rather than a systematic review, shouldn’t it include what keywords were searched for?

Thanks for highlighting this omission. The keywords used in the literature search should have been included and we had only included a link to them in the protocol. We have now included these in the Supplementary file 2.

The search strategy was published with the registered protocol and can be found in supplementary file 2.

5. The definition of follow-up needs to be clarified. Clarifying whether it is an intervention during hospitalisation or after discharge from hospital could sharpen the reader’s interpretation.

Thank you for suggesting this. We have now clarified the definition we have used for follow-up, which can be seen in red in the text below.

Given the rapid increase in research publications in this area and the specific focus of the recent scoping review by Kontou and colleagues, it was felt that a new overview of all follow-up provided was justified. Within this review our definition of follow-up refers to interventions, other than routine medical follow-up, delivered once the person with minor stroke has left hospital. However, this does not include interventions delivered in hospital nor does it include early supported discharge and community stroke therapy for those leaving hospital with obvious physical, cognitive or psychological impairments. The focus of the current review is on those with a diagnosis of minor stroke who are currently considered ‘too good’ for existing stroke services. The main objective of this scoping review is to identify the breadth and range of follow-up interventions currently provided to people after minor stroke, and questions will focus on:

6. Are the results obtained in this study in line with the objectives? The objective states that the study is "to identify the breadth and range of follow-up interventions currently provided to people after minor stroke", but is it clear? Although it is a scoping review, shouldn’t it describe what interventions were available and what were the effects from the extracted papers?

Thank you for this question- we did aim to identify the breadth and range of follow-up interventions currently provided to people after minor stroke. We provided a summary of all the interventions found and their outcomes in Table 1. We have also included the TIDieR checklist in supplementary file 3 which provides a more detailed description of the intervention components. We were unable to report on the efficacy of the interventions found using the scoping review methodology as formal assessment of methodological quality is not recommended in this context. We have acknowledged your question as to whether we have in fact identified the breadth and range of follow-up interventions in the study limitations.
A limitation of this scoping review relates to the inconsistent terminology and definitions used for ‘minor stroke’. We attempted to be as thorough as possible in the search terms we used but it is possible that our search strategy could have inadvertently resulted in some relevant studies being missed. Studies included were based on authors local definitions of TIA and minor stroke which could lead to inconsistencies in the included studies. The search terms used aimed to focus the search on follow-up provided to people after minor stroke but in so doing we may have compromised the breadth of the search by missing relevant studies targeted at all people with stroke. The focus on post-discharge interventions also meant that interventions commenced in the acute setting and continued in the community were not eligible (Reference included in main document: Ashizawa et al, 2022).

**VERSION 2 – REVIEW**

<table>
<thead>
<tr>
<th>REVIEWER</th>
<th>Liljehult, Jacob Mesot</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Nordsjællands Hospital, Department of Neurology</td>
</tr>
<tr>
<td>REVIEW RETURNED</td>
<td>13-Apr-2023</td>
</tr>
</tbody>
</table>

**GENERAL COMMENTS**

Overall, I am quite satisfied with the authors responses and the changes made to the manuscript.

I do find that Table 2 needs a bit of tidying up: 1) all the studies should have proper references (Primary author and number will be sufficient); 2) there are a few typing errors, such as ‘Ilhle Hansen’ instead of ‘Ihle-Hansen’.

With these few revisions I find that the manuscript will be acceptable for publication.

<table>
<thead>
<tr>
<th>REVIEWER</th>
<th>Ashizawa, Ryota</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Seirei Mikatahara Hospital</td>
</tr>
<tr>
<td>REVIEW RETURNED</td>
<td>12-Apr-2023</td>
</tr>
</tbody>
</table>

**GENERAL COMMENTS**

The author has appropriately corrected the previous remarks.

**VERSION 2 – AUTHOR RESPONSE**

Reviewer: 1

Overall, I am quite satisfied with the authors responses and the changes made to the manuscript.

I do find that Table 2 needs a bit of tidying up: 1) all the studies should have proper references (Primary author and number will be sufficient); 2) there are a few typing errors, such as ‘Ilhle Hansen’ instead of ‘Ihle-Hansen’.

With these few revisions I find that the manuscript will be acceptable for publication.

Thank you for your further review of my manuscript. We have now added the reference number to all the studies listed in Table 2. We have also corrected the spelling of Ihle Hansen.