

Central Lancashire Online Knowledge (CLOK)

Title	A scoping review of psychoeducational interventions for people after transient ischemic attack and minor stroke
Type	Article
URL	https://clock.uclan.ac.uk/34949/
DOI	##doi##
Date	2020
Citation	Kontou, E, Kettlewell, J, Condon, L, Thomas, S, Lee, AR, Sprigg, N, Watkins, Caroline Leigh orcid iconORCID: 0000-0002-9403-3772, Walker, M and Shokrane, F (2020) A scoping review of psychoeducational interventions for people after transient ischemic attack and minor stroke. Topics in Stroke Rehabilitation, 28 (5). pp. 390-400. ISSN 1074-9357
Creators	Kontou, E, Kettlewell, J, Condon, L, Thomas, S, Lee, AR, Sprigg, N, Watkins, Caroline Leigh, Walker, M and Shokrane, F

It is advisable to refer to the publisher's version if you intend to cite from the work. ##doi##

For information about Research at UCLan please go to <http://www.uclan.ac.uk/research/>

All outputs in CLOK are protected by Intellectual Property Rights law, including Copyright law. Copyright, IPR and Moral Rights for the works on this site are retained by the individual authors and/or other copyright owners. Terms and conditions for use of this material are defined in the <http://clock.uclan.ac.uk/policies/>

A Scoping Review of Psychoeducational Interventions for People After Transient Ischaemic Attack and Minor Stroke

****Dr Eirini Kontou** Division of Rehabilitation, Ageing & Wellbeing, University of Nottingham, B Floor, The Medical School, Queens Medical Centre, Nottingham, NG7 2UH

eirini.kontou@nottingham.ac.uk @DrEiriniKontou ORCID: 0000-0001-5837-9891

Dr Jade Kettlewell Division of Primary Care, University of Nottingham, Room 1401, Tower Building, University Park, Nottingham, NG7 2RD

jade.kettlewell2@nottingham.ac.uk @jade_kettlewell ORCID: 0000-0002-6713-4551

Dr Laura Condon Division of Primary Care, University of Nottingham, Room 1404, Tower Building, University Park, Nottingham, NG7 2RD

laura.condon@nottingham.ac.uk ORCID: 0000-0002-7039-3095

Dr Shirley Thomas Division of Rehabilitation, Ageing & Wellbeing, University of Nottingham, Queens Medical Centre, Nottingham, NG7 2UH

shirley.thomas@nottingham.ac.uk

Abigail R. Lee Division of Rehabilitation, Ageing & Wellbeing, University of Nottingham, Queens Medical Centre, Nottingham, NG7 2UH

Abigail.Lee1@nottingham.ac.uk ORCID: 0000-0003-2931-8111

Prof Nikola Sprigg, Division of Clinical Neuroscience, Clinical Sciences Building, City Hospital Campus, Nottingham, NG5 1PB, UK

nikola.sprigg@nottingham.ac.uk

Prof Dame Caroline Watkins Faculty of Health and Wellbeing, University of Central Lancashire, Brook Building, Preston, UK

clwatkins@uclan.ac.uk

Prof Marion Walker Division of Rehabilitation, Ageing & Wellbeing, University of Nottingham, Medical School, Queens Medical Centre, Nottingham, NG7 2UH, UK

marion.walker@nottingham.ac.uk

Dr Farhad Shokrane King's Technology Evaluation Centre, London Institute of Healthcare Engineering, School of Biomedical Engineering and Imaging Sciences, Faculty of Life Sciences and Medicine, King's College London, London, UK

farhad.shokraneh@kcl.ac.uk @FarhadShokraneh ORCID: 0000-0001-9687-8560

****Corresponding Author**

Word Count (main text without references): 3057 words

Abstract (word count 257)

Background: Psychoeducation can provide information and support to cope with the physical and emotional effects of a health condition. This scoping review aimed to identify the evidence regarding psychoeducational interventions for people after a Transient Ischaemic Attack (TIA) and minor stroke.

Methods: This review was conducted in accordance with the PRISMA Extension for Scoping Reviews. Three electronic databases (MEDLINE, Embase, PsycINFO) were searched for articles on interventions related to psychoeducational support post TIA and minor/mild stroke. Search retrieved 3722 articles. Three reviewers independently screened titles, abstracts, full-texts, and then extracted data for included studies. Study quality was assessed using the JADAD scale. TIDieR checklist was used to describe interventions.

Results: Fifteen RCTs were included. Twelve studies were of high quality (JADAD score ≥ 2), two were low quality. A total of 1500 participants were recruited across the studies. Definition of TIA and minor stroke were unclear, leading to the exclusion of several studies. Various interventions were included, including education/psychoeducation (n=4); exercise and lifestyle advice (n=3); telephone-based education/counselling (n=3); secondary prevention education (n=1); motivational interviewing (n=2); self-management (n=2). Interventions were inconsistently described, with information missing about who delivered it and tailoring.

Conclusions: Definitions of stroke severity are not adequately reported. There are variety of interventions including education about a range of stroke-specific topics. Many interventions are not adequately defined, thus making it difficult to determine if the aim was to provide information or support to promote self-management and wellbeing post TIA/minor stroke. There is a need for a more in-depth systematic review to develop a clear definition of psychoeducation.

Keywords: scoping review, TIA, minor stroke, psychoeducation, complex intervention

1. Introduction

Transient Ischaemic Attacks (TIA) and minor stroke constitute for more than 50% of all stroke cases¹. A TIA (or 'mini-stroke') is the presence of focal neurological dysfunction, caused by a temporary blood clot, which resolves within 24 hours². Minor stroke often refers to a stroke where the symptoms are classed as mild and non-disabling^{3, 4}. It is widely assumed that patients make a full recovery, but there is emerging evidence on the long-term impact of TIA and minor stroke^{5, 6}.

Understanding the top research priorities relating to the long-term effects of TIA and minor stroke among relevant stakeholders is key to improving the care and interventions provided⁷. Turner et al., held consensus discussions⁷ and identified eleven research priorities, including what advice, support and information should people receive after their diagnosis.

A recent qualitative review of patients' experiences of TIA symptoms, diagnosis, treatment and secondary prevention revealed the potential long-term impact of TIAs on quality of life and psychological wellbeing⁸. This review highlighted the importance of providing information and support after a TIA diagnosis, as a lack of knowledge may lead to greater negative psychological effects and limited engagement with secondary prevention.

A systematic review explored evidence regarding secondary prevention lifestyle interventions within 90 days of TIA or 'minor stroke' diagnosis⁹. Four randomised controlled trials (RCTs) were included with various interventions; post-discharge care management; education and exercise; exercise; and instructions on how to be physically active. The review highlighted the limited evidence reporting the effectiveness of these types of interventions, and further RCTs investigating rehabilitation programmes that focus on promoting lifestyles changes are required. Despite some evidence that there is a need for interventions to provide information, to reduce distress and to promote adherence to secondary prevention, it is still unclear what specialist support should be offered following a TIA or minor stroke.

Psychoeducation is a broad and multidimensional concept included as a component in many interventions that aim to improve aspects of mood or quality of life. Interventions based on psychoeducation can provide support and information to help people better manage a health condition¹⁰. This could be an effective method of providing support and education after the diagnosis of a TIA or minor stroke, however to our knowledge there has not been a review on the effectiveness of psychoeducational interventions in stroke survivors. Compared to moderate to severe stroke survivors, there is emerging evidence that people diagnosed with a TIA and minor stroke are also at great risk of developing physical and emotional health difficulties^{11, 12}. TIA and minor stroke patients are usually managed as outpatients in specialist TIA clinics¹³ that focus on secondary prevention to reduce the risk of future strokes with limited access to post-discharge support services for non-medical interventions.

There is a timely need to conduct a scoping review of the literature to identify knowledge gaps and to examine research designs concerning interventions to improve education and psychological well-being for people with TIA and minor stroke. This review aimed to identify the nature and extent of research evidence available to support the use of psychoeducational interventions post-TIA and minor stroke. For the purpose of this review, we define psychoeducational interventions as individual or group programmes providing support, information, education, and management strategies.

2. Methods

This scoping review was conducted in accordance with the PRISMA Extension for Scoping Reviews (see PRISMA-ScR Checklist in Appendix 1)¹⁴.

2.1. Data Sources and Search strategy

Search strategies were developed using indexed terms from controlled vocabularies and free text words relating to TIA, minor stroke and interventions providing education, psychological support, or secondary prevention (example in Appendix 2). The last search was conducted on published literature in the English language until 1st June 2019. The search strategy was

adapted for the requirements of each database. We searched the following databases: Ovid MEDLINE(R), Ovid MEDLINE(R) In-Process & Other Non-Indexed Citations, Ovid MEDLINE(R) Daily and Ovid OLDMEDLINE(R) (inception to June 2019); Embase Classic + Embase (OvidSP) (inception to June 2019); PsycINFO (OvidSP) (inception to June 2019). As this was a scoping review, grey literature searches were not conducted, however reference lists were hand-searched. Search results were exported directly to EndNote X9 and duplicates were removed.

2.2. Eligibility criteria

Articles were included if they met the following criteria: 1) focused on interventions related to education, support and management strategies post TIA and minor/mild stroke; 2) were administered in hospital or in community settings; 3) included people with TIA and/or minor/mild stroke; 4) presented relevant information about psychoeducation as a component of the intervention that could be extracted. Studies were excluded if they: 1) did not have a component specifically designed for people with TIA and/or minor/mild stroke; 2) did not have any outcomes related to mood, quality of life or secondary prevention; 3) focused only on the physical impact of TIA and minor/mild stroke; 4) included people with moderate to severe stroke severity (defined by measurement tools or descriptions to define stroke severity); 5) were not a RCT or did not have a control group; 6) were a protocol; 7) focused on other participant groups (for example, carers, family members or healthcare professionals).

2.3. Procedure

Three authors (EK, JK, LC) independently searched through the databases identifying potential articles for inclusion. Following the removal of duplicates, titles and abstracts were reviewed using the eligibility criteria. Once articles for potential inclusion were identified, authors collated results and checked for agreement (EK, JK, LC). Where disagreements arose, the reviewers discussed reasons for inclusion or exclusion, reaching a final decision.

2.4. Quality Appraisal

Three authors (EK, JK, LC) independently assessed the quality of included studies using the JADAD scale¹⁵, which was used for its brevity and ease of use. A fourth author (ST) rated a random sample of five articles to ensure accuracy. Findings were compared and results tabulated.

2.5. Data Extraction

Data were extracted relating to aspects of study design, participant characteristics, details of the intervention, outcome measures (primary and secondary), and conclusions. A bespoke data extraction form was developed and used which was modelled on the TIDieR checklist, to ensure relevant and consistent data was extracted from the included studies^{16, 17}.

3. Results

3.1. Study design and participant characteristics

The initial search identified 3722 articles. Fifteen studies were included in the review. Figure 1 presents a PRISMA flow diagram. All reviewers were in agreement about which studies met the inclusion criteria. Most studies (80%) were of high quality (n=12, JADAD score 3-5), with only three studies having low quality designs and reporting (JADAD score 0-2). All studies reported drop-out rates, with most studies scoring low on blinding of participants and assessors. Some methods of randomisation were also inappropriate, such as allocation based on participant characteristics. A summary of scores is shown in Table 1.

A total of 1500 participants with TIA (n=104) or minor stroke (n=1133) were recruited and randomised across the 15 studies. Studies were conducted in the USA, Netherlands, New Zealand, UK, Canada, Ireland and Taiwan. Three studies recruited people from TIA/minor stroke or stroke prevention clinics¹⁸⁻²⁰, one recruited patients via a specialised stroke unit²¹, two via outpatient clinics^{22, 23} and the remainder via rehabilitation, acute or veteran hospitals. Information about participant numbers and demographics was generally well reported and consistent for all studies, presenting age, gender, sample size, and type of stroke. Dropout

rates (range 0-20%) were recorded for all studies, some more detailed than others. Only one study had 100% adherence¹⁸, and another study recorded only one participant leaving the study early due to work commitments¹⁹. One study had a large number of dropouts (n=36), however as there was a large sample size this only equated to 18% drop rate²⁰. The intervention period varied for the studies, with the majority lasting 3 or 6 months. A summary of study characteristics is shown in Table 2.

Although all studies state that they included TIA and/or minor stroke participants, the definition of diagnoses was variable and, in some cases unclear. The diagnosis of minor/mild stroke across the studies was: i) National Institutes of Health Stroke Scale (NIHSS) score of ≥ 1 , 0 to 5, ≤ 3 or ≤ 15 ; ii) score $>8.5/11.5$ on the Canadian Neurological Scale; iii) a modified Rankin Score between 0 and 2; iv) Barthel Index score of >60 or ≥ 65 ; v) minor stroke confirmed by positive findings on CT or MRI of the head. There was no common definition of minor stroke, and no explicit definition of TIA. The number of participants with a TIA versus minor stroke diagnosis was not clearly reported in one study²⁴ and three studies included both diagnoses but did not report the numbers²⁵⁻²⁷.

3.2. Intervention details

All studies detailed their interventions relatively well, in accordance with the TIDieR checklist¹⁶. However, there was limited information about who delivered the intervention, training provided to those delivering the intervention and tailoring of the intervention to individual participants. There was also limited reporting of fidelity assessments, meaning few studies provided any information about whether the intervention was delivered as intended.

The components of the interventions were well described across the studies. Varying interventions were used by all studies, apart from two studies that used the same manual-based intervention^{18, 19}. Interventions included education, psychoeducation, exercise and lifestyle advice, telephone-based education/counselling, enhancing secondary prevention,

motivational interviewing and improving self-management. A summary of intervention details is shown in Table 3.

Four studies focused on education or psychoeducation. One²⁸ was delivered at home by an advanced practice nurse care manager who provided education about lifestyle change and stroke warning signs. Two studies^{18, 19} used the '*Healthy Brain Rehabilitation Manual*²⁹, which contained information about TIA/minor stroke, how to set goals, action plans for changing lifestyle, secondary prevention and mental health. Participants received a pedometer alongside the manual to encourage exercise. Another study²² delivered an eight week community-based stroke education programme, delivered as lectures, demonstrations, or discussions. It provided education on warning signs, risks, diet, social activities, rehabilitation, and support. One study²³ specifically delivered enhanced secondary prevention support and discussed behaviour change intentions, which could be considered psychoeducation.

Three studies^{21, 24, 30} delivered exercise and education programmes that lasted eight weeks focusing on stroke prevention and healthy behaviour change. One study²¹ delivered lifestyle education every three months.

Three studies provided telephone-based interventions, either providing education, counselling, or advice. One study³¹ provided a stroke self-management programme via telephone, covering stroke warning signs, self-management topics and helping patients understand their diagnosis. Another³² provided telephone support for six months, providing information on stroke/lifestyle management. The third study³³ delivered lifestyle and behavioural management via telephone, involving a nurse educator and peer dyads (i.e. individuals who had stroke/TIA and their carers).

Two studies used motivational interviewing to deliver education and encourage lifestyle change. One²⁵ provided enhanced stroke education provided by a discharge educator and the other study²⁰ delivered education counselling with the use of motivational interviews provided by a nurse.

Two additional studies implemented different self-management programmes. One³⁴ focused on medical, emotional and participation management, encouraging problem-solving and another³⁵ focused on three goals: medical, role and emotional management.

3.3. Outcomes

A range of outcomes were used across the studies. A summary is shown in Table 4. Four measured quality of life as a primary outcome, three of which used the EuroQol EQ-5D and one used stroke specific measure³¹. Three studies measured quality of life as a secondary outcome. Some studies included measures of physical activity (e.g. the International Physical Activity Questionnaire; IPAQ), neuromotor function or exercise capacity. Seven studies included measures of mood or psychosocial function, such as the Hospital Anxiety and Depression Scale (HADS), Patient Health Questionnaire–9 (PHQ-9) and Beck Depression Inventory II (BDI-II), although not all were primary outcomes. Other included measures were related to stroke knowledge and awareness, self-efficacy, and outcomes relevant to secondary prevention (e.g. diet, BMI, weight, alcohol consumption).

Several significant changes in outcomes were presented across the included studies. Three studies^{20, 28, 34} reported a significant increase in stroke knowledge or self-efficacy/management in the intervention group compared to controls. Other studies reported improvement in secondary prevention measures, such as reduced cholesterol²¹, improved self-reported exercise²³ and an improved global health score³⁰ in the intervention groups compared to controls. There was a significant reduction in recurrent strokes or TIAs in one study²⁴ after an eight-week exercise and education programme compared to controls.

4. Discussion

This scoping review was conducted instead of a systematic review, with the aim to determine the body of literature on the topic of psychoeducational interventions for individuals following TIA and minor stroke. Our review identified a total of fifteen RCTs that had a focus on educating individuals following minor stroke or TIA, encouraging them to change their lifestyle,

180 increasing exercise levels, setting health related goals, and improving understanding of their
181 diagnosis. All studies had a supportive, educational, or psychological component.

182 Although a number of high-quality studies were identified, challenges arose when deciding
183 which articles to include. One issue was the inconsistent definition of TIA and minor stroke
184 across the literature, which made it difficult to determine whether participants were diagnosed
185 with the relevant condition. There was considerable variability in the way studies reported the
186 inclusion or diagnosis of participants with minor/mild stroke and no common definition of stroke
187 severity was found across the relevant literature. The diagnosis of TIA is known to be variable,
188 often relying on accurate history taking and clinical expertise. Experts frequently disagree on
189 TIA diagnoses, which poses a challenge for research and long-term care of patients³⁶⁻³⁹.

190 Another issue was our own general definition of psychoeducation and the inconsistency
191 across studies included in describing interventions. This review conceptualised
192 psychoeducation as any intervention that included a component of education, support and
193 management strategies. Several studies delivered an element of education or
194 psychoeducation, but failed to explicitly state when psychological components were delivered.
195 This made it difficult to determine the number of studies providing 'pure' psychoeducational
196 interventions, leading to the exclusion of some articles^{40, 41}. Although there are long-standing
197 and frequently cited definitions of psychoeducation within the literature^{42, 43} it appears that
198 researchers are not consistent in their description of such interventions, how these are
199 implemented, or their individual components. There is a need for more well-designed trials or
200 studies to better understand the components of psychoeducation and its potential impact on
201 outcomes. Further research will facilitate the development of a clear definition of
202 psychoeducation as a standalone intervention or as an individual component included as part
203 of a multi-faceted complex intervention. The benefits of psychoeducation are evidence-based,
204 and known to improve outcomes, however it is still unclear whether these interventions are
205 being implemented with people after a TIA and minor stroke.

Interventions were delivered by a variety of people, including stroke nurses, trained healthcare professionals, GPs, nurse educators and discharge educators. None of the studies stated that psychologists delivered the intervention. There was no commonality among the individuals responsible for delivering the interventions, and limited information about how these individuals were trained to provide psychological support, motivational interviewing, or psychoeducation. This may be an issue in terms of appropriate and correct delivery of interventions with psychological components. Also, few studies reported fidelity assessment, which would provide useful information about whether the intervention was delivered as intended. Reporting of this is important in terms of understanding how the intervention could be improved and determine whether those delivering it require specific training.

Poor reporting of training and fidelity means that replication of such interventions in practice is inevitably difficult. Potential barriers to the success of psychoeducational programmes in the TIA/minor stroke population are largely unknown. Inconsistent reporting of psychoeducation interventions makes it challenging for researchers to consider potential implementation barriers to effective delivery, thus preventing the field from moving forward.

Improvements in knowledge, self-efficacy, and a reduction in recurrent strokes/TIAs were reported across the literature. This is a key finding as TIA and minor stroke are medical emergencies that require individuals to seek help and adapt their lifestyles. These are positive findings suggesting that a psychoeducational support component in interventions for this population could support secondary prevention. Previous literature suggests that psychoeducation interventions improve self-reported health, coping skills⁴⁴ and family functioning⁴⁵ for stroke caregivers, along with improved coping/quality of life and decreased depressive symptoms in stroke survivors⁴⁶. There is a wealth of research highlighting the benefits of psychoeducational interventions in other populations, such as those with cancer⁴⁷ and cardiac disease⁴⁸, however, there still remains an inconsistency in the reporting and definition of these interventions.

A strength of our review was the use of the TIDieR checklist to aid data extraction, which has been used and recommended by other reviewers^{17, 49, 50}. This facilitated consistent reporting of intervention details and highlighted areas of poor reporting. Although this review used a systematic search strategy to identify all relevant articles, it does have some limitations. We limited our search to English language only, which may have excluded some relevant studies.

Overall, this review included a number of studies implementing heterogeneous interventions that included components of psychoeducation, however it also highlighted the evidence gaps in the literature regarding the use of psychoeducation and inconsistencies in intervention descriptions. It identified two key aspects that require further clarification: i) the definition of different types of stroke and severity of the diagnosis, and ii) what are the key characteristics of a psychoeducational intervention. The findings from this review clearly indicate the need for more high quality clinical trials in this area to determine the effectiveness of psychoeducational interventions in TIA or minor stroke, and to generate a clear and consistent definition of psychoeducation. This could inform the development of future interventions with components of psychoeducational support after TIA and minor stroke.

We hope this review will help to establish the a priori characteristics of a systematic review in this topic area. Furthermore, this review highlights that future studies concerning interventions for TIA and minor stroke need to consider a definition of these diagnoses as well as the reporting of stroke type and severity. We recommend that a future systematic review is conducted using appropriate methodology and focuses on specific questions to address knowledge gaps. Findings will guide research on interventions for the provision of psychoeducational support after TIA and minor stroke with the aim to improve psychosocial outcomes or preventing future strokes.

Disclosure of Interest

The authors report no conflict of interest.

259 **Funding**

260 This review was funded by a Postdoctoral Fellowship funded by the Stroke Association, UK

261 (Ref: TSA PDF 2015/01). For further information on this grant:

262 <https://www.stroke.org.uk/research/psychological-educational-and-social-support-people->

263 [after-tia-and-minor-stroke](https://www.stroke.org.uk/research/psychological-educational-and-social-support-people-after-tia-and-minor-stroke)

264

265

266

5. References

1. Verbraak ME, Hoeksma AF, Lindeboom R, et al. Subtle problems in activities of daily living after a transient ischemic attack or an apparently fully recovered non-disabling stroke. *Journal of Stroke and Cerebrovascular Diseases* 2012; 21: 124-130.
2. Tyrrell P, Swain S and Rudd A. Diagnosis and initial management of transient ischaemic attack. *Clinical medicine* 2010; 10: 164.
3. Crespi V, Braga M, Beretta S, et al. A practical definition of minor stroke. *Neurological Sciences* 2013; 34: 1083-1086.
4. Fischer U, Baumgartner A, Arnold M, et al. What is a minor stroke? *Stroke* 2010; 41: 661-666.
5. Moran GM, Fletcher B, Feltham MG, et al. Fatigue, psychological and cognitive impairment following transient ischaemic attack and minor stroke: a systematic review. *European Journal of Neurology* 2014; 21: 1258-1267.
6. Kellett N, Drummond AER, Palmer T, et al. Impact of transient ischaemic attack and minor stroke on daily life. *International Journal of Therapy and Rehabilitation* 2014; 21: 318-323.
7. Turner GM, Backman R, McMullan C, et al. Establishing research priorities relating to the long-term impact of TIA and minor stroke through stakeholder-centred consensus. *Research involvement and engagement* 2018; 4: 2.
8. Ravenhill G, Gkanasouli L and Lawrence M. Experiences of transient ischaemic attack diagnosis and secondary prevention: a qualitative review. *British Journal of Neuroscience Nursing* 2019; 15: S14-S25.
9. Heron N, Kee F, Cardwell C, et al. Secondary prevention lifestyle interventions initiated within 90 days after TIA or 'minor' stroke: a systematic review and meta-analysis of rehabilitation programmes. *Br J Gen Pract* 2017; 67: e57-e66.
10. Lukens EP and McFarlane WR. Psychoeducation as Evidence-Based Practice: Considerations for Practice, Research, and Policy. *Brief Treatment & Crisis Intervention* 2004; 4.
11. Stroke Association. *Not Just a Funny Turn: The Real Impact of TIA*. Stroke Association, 2014.
12. Sackley CM, Mant J, McManus RJ, et al. Functional and emotional outcomes after transient ischemic attack: A 12-month prospective controlled cohort study. *International Journal of Stroke* 2019; 14: 522-529.
13. Giles MF and Rothwell PM. Substantial underestimation of the need for outpatient services for TIA and minor stroke. *Age and ageing* 2007; 36: 676-680.
14. Tricco AC, Lillie E, Zarin W, et al. PRISMA extension for scoping reviews (PRISMA-ScR): checklist and explanation. *Annals of internal medicine* 2018; 169: 467-473.
15. Jadad AR, Moore RA, Carroll D, et al. Assessing the quality of reports of randomized clinical trials: is blinding necessary? *Controlled clinical trials* 1996; 17: 1-12.
16. Hoffmann TC, Glasziou PP, Boutron I, et al. Better reporting of interventions: template for intervention description and replication (TIDieR) checklist and guide. *Bmj* 2014; 348: g1687.
17. Kettlewell J, das Nair R and Radford K. A systematic review of personal smart technologies used to improve outcomes in adults with acquired brain injuries. *Clinical rehabilitation* 2019; 33: 1705-1712.
18. Heron N, Kee F, Mant J, et al. Stroke Prevention Rehabilitation Intervention Trial of Exercise (SPRITE)-a randomised feasibility study. *BMC cardiovascular disorders* 2017; 17: 290.
19. Heron N, Kee F, Mant J, et al. *British Journal of General Practice* 2019; 69 (687): e706-e714.
20. Green T, Haley E, Eliasziw M, et al. Education in stroke prevention: efficacy of an educational counselling intervention to increase knowledge in stroke survivors. *Can J Neurosci Nurs* 2007; 29: 13-20.
21. Boss HM, Van Schaik SM, Deijle IA, et al. Safety and feasibility of post-stroke care and exercise after minor ischemic stroke or transient ischemic attack: MotiveS & MoveIT. *NeuroRehabilitation* 2014; 34: 401-407.

22. Wang L, Chen CM, Liao WC, et al. Evaluating a community-based stroke nursing education and rehabilitation programme for patients with mild stroke. *International journal of nursing practice* 2013; 19: 249-256.
23. Gillham S and Endacott R. Impact of enhanced secondary prevention on health behaviour in patients following minor stroke and transient ischaemic attack: a randomized controlled trial. *Clinical rehabilitation* 2010; 24: 822-830.
24. Faulkner J, Stoner L, Lanford J, et al. Long-term effect of participation in an early exercise and education program on clinical outcomes and cost implications, in patients with TIA and minor, non-disabling stroke. *Translational stroke research* 2017; 8: 220-227.
25. Byers AM, Lamanna L and Rosenberg A. The effect of motivational interviewing after ischemic stroke on patient knowledge and patient satisfaction with care: a pilot study. *Journal of Neuroscience Nursing* 2010; 42: 312-322.
26. Gillham S and Endacott R. Impact of enhanced secondary prevention on health behaviour in patients following minor stroke and transient ischaemic attack: a randomized controlled trial. *Clinical rehabilitation* 2010; 24: 822-830. DOI: <https://dx.doi.org/10.1177/0269215510367970>.
27. Kim J-I, Lee S and Kim J-H. Effects of a web-based stroke education program on recurrence prevention behaviors among stroke patients: A pilot study. *Health Education Research* 2013; 28: 488-501. Medical Treatment of Physical Illness 3363. DOI: <http://dx.doi.org/10.1093/her/cyt044>.
28. Allen K, Hazelett S, Jarjoura D, et al. A randomized trial testing the superiority of a postdischarge care management model for stroke survivors. *Journal of Stroke and Cerebrovascular Diseases* 2009; 18: 443-452.
29. Heron N. Cardiac rehabilitation for the transient ischaemic attack (TIA) and stroke population? Using the Medical Research Council (MRC) guidelines for developing complex health service interventions to develop home-based cardiac rehabilitation for TIA and 'minor' stroke patients. *British journal of sports medicine* 2019; 53: 839-840.
30. Faulkner J, McGonigal G, Woolley B, et al. A randomized controlled trial to assess the psychosocial effects of early exercise engagement in patients diagnosed with transient ischaemic attack and mild, non-disabling stroke. *Clinical rehabilitation* 2015; 29: 783-794.
31. Damush TM, Ofner S, Yu Z, et al. Implementation of a stroke self-management program: a randomized controlled pilot study of veterans with stroke. *Translational behavioral medicine* 2011; 1: 561-572.
32. Rochette A, Korner-Bitensky N, Bishop D, et al. The YOU CALL–WE CALL randomized clinical trial: Impact of a multimodal support intervention after a mild stroke. *Circulation: Cardiovascular Quality and Outcomes* 2013; 6: 674-679.
33. Sajatovic M, Tatsuoka C, Welter E, et al. A targeted self-management approach for reducing stroke risk factors in African American men who have had a stroke or transient ischemic attack. *American Journal of Health Promotion* 2018; 32: 282-293.
34. Wolf TJ, Baum CM, Lee D, et al. The development of the Improving Participation after Stroke Self-Management Program (IPASS): An exploratory randomized clinical study. *Topics in stroke rehabilitation* 2016; 23: 284-292.
35. Wolf TJ, Spiers MJ, Doherty M, et al. The effect of self-management education following mild stroke: An exploratory randomized controlled trial. *Topics in stroke rehabilitation* 2017; 24: 345-352.
36. Coutts SB. Diagnosis and Management of Transient Ischemic Attack. *Continuum (Minneapolis)* 2017; 23: 82-92. DOI: 10.1212/CON.0000000000000424.
37. Kraaijeveld CL, Van Gijn J, Schouten HJ, et al. Interobserver agreement for the diagnosis of transient ischemic attacks. *Stroke* 1984; 15: 723-725.
38. Koudstaal PJ, Gerritsma JG and Van Gijn J. Clinical disagreement on the diagnosis of transient ischemic attack: is the patient or the doctor to blame? *Stroke* 1989; 20: 300-301.
39. Castle J, Mlynash M, Lee K, et al. Agreement regarding diagnosis of transient ischemic attack fairly low among stroke-trained neurologists. *Stroke* 2010; 41: 1367-1370.

40. Kirk H, Kersten P, Crawford P, et al. The cardiac model of rehabilitation for reducing cardiovascular risk factors post transient ischaemic attack and stroke: a randomized controlled trial. *Clinical rehabilitation* 2014; 28: 339-349.
41. Kono Y, Yamada S, Yamaguchi J, et al. Secondary prevention of new vascular events with lifestyle intervention in patients with noncardioembolic mild ischemic stroke: a single-center randomized controlled trial. *Cerebrovascular Diseases* 2013; 36: 88-97.
42. Edward Watkins C. Psychoeducational Training in Counseling Psychology Programs: Some Thoughts on a Training Curriculum. *The Counseling Psychologist* 1985; 13: 295-302. DOI: 10.1177/0011000085132007.
43. Cummings NA and Cummings JL. Psychoeducation in conjunction with psychotherapy practice. *Evidence-based adjunctive treatments*. Elsevier, 2008, pp.41-59.
44. Ostwald SK, Godwin KM, Cron SG, et al. Home-based psychoeducational and mailed information programs for stroke-caregiving dyads post-discharge: a randomized trial. *Disability and Rehabilitation* 2014; 36: 55-62. DOI: 10.3109/09638288.2013.777806.
45. Cheng HY, Chair SY and Chau JP-C. The effectiveness of psychosocial interventions for stroke family caregivers and stroke survivors: A systematic review and meta-analysis. *Patient Education and Counseling* 2014; 95: 30-44. DOI: <https://doi.org/10.1016/j.pec.2014.01.005>.
46. Robinson-Smith G, Harmer C, Sheeran R, et al. Couples' Coping After Stroke—A Pilot Intervention Study. *Rehabilitation Nursing* 2016; 41: 218-229.
47. Xiao W, Chow, KM, Winnie KW, et al. The effectiveness of psychoeducational intervention on managing symptom clusters in patients with cancer: A systematic review of randomized controlled trials. *Cancer Nursing* 2016; 39: 279-291.
48. Aldcroft SA, Taylor NF, Blackstock FC, et al. Psychoeducational Rehabilitation for Health Behavior Change in Coronary Artery Disease: A SYSTEMATIC REVIEW OF CONTROLLED TRIALS. *Journal of Cardiopulmonary Rehabilitation and Prevention* 2011; 31.
49. Cotterill S, Knowles S, Martindale A-M, et al. Getting messier with TIDieR: embracing context and complexity in intervention reporting. *BMC Med Res Methodol* 2018; 18: 12-12. DOI: 10.1186/s12874-017-0461-y.
50. Lim S, Liang X, Hill B, et al. A systematic review and meta-analysis of intervention characteristics in postpartum weight management using the TIDieR framework: A summary of evidence to inform implementation. *Obes Rev* 2019; 20: 1045-1056. 2019/04/04. DOI: 10.1111/obr.12846.

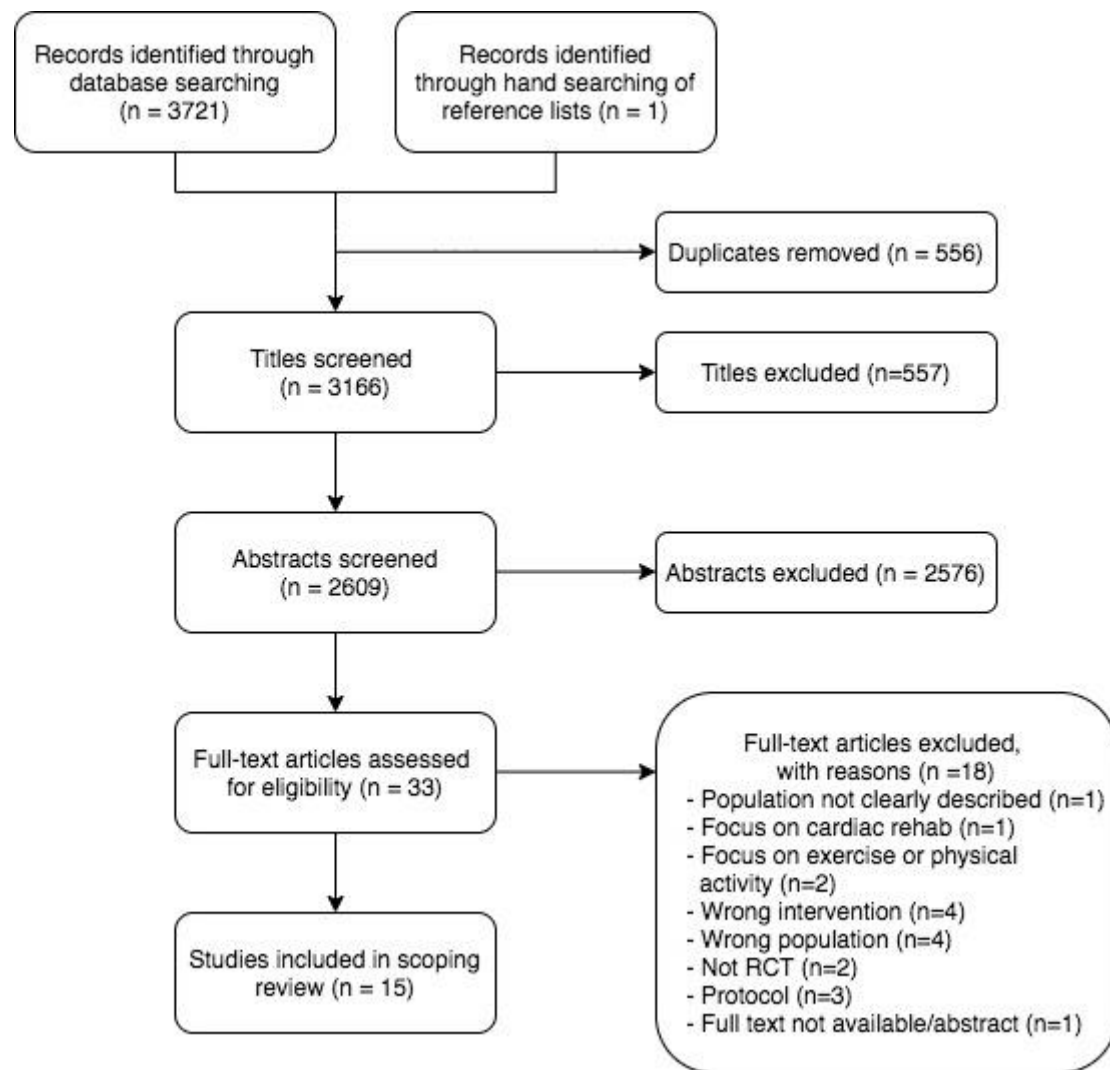


Figure 1. PRISMA diagram

Table 1. JADAD Scale Scores

Study ID (First Author, Year)	Randomisation (max = 2)	Blinding (max = 2)	Account of Patients (max = 1)	Total Score (max = 5)	Quality
Allen, 2009	2	2	1	5	High
Boss, 2014	1	0	1	2	Low
Byers, 2010	1	0	1	2	Low
Damush, 2011	2	1	1	4	High
Faulkner, 2015	2	1	1	4	High
Faulkner, 2017	1	2	1	4	High
Gillham, 2010	2	1	1	4	High
Green, 2007	2	0	1	3	High
Heron, 2017	2	1	1	4	High
Heron, 2019	2	1	1	4	High
Rochette, 2013	2	2	1	5	High
Sajatovic, 2018	2	0	1	3	High
Wang, 2013	1	0	1	2	Low
Wolf, 2016	2	2	1	5	High
Wolf, 2017	2	2	1	5	High

Tables 2. Study methods and participant characteristics of included studies.

See Supplementary Material File; 2-4.

Table 3. Intervention details of included studies.

See Supplementary Material File; Tables 2-4.

Table 4. Outcomes reported by included studies.

See Supplementary File; Tables 2-4.

Appendix 1: Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR) Checklist

SECTION	ITEM	PRISMA-ScR CHECKLIST ITEM	REPORTED ON PAGE #
TITLE			
Title	1	Identify the report as a scoping review.	1
ABSTRACT			
Structured summary	2	Provide a structured summary that includes (as applicable): background, objectives, eligibility criteria, sources of evidence, charting methods, results, and conclusions that relate to the review questions and objectives.	2
INTRODUCTION			
Rationale	3	Describe the rationale for the review in the context of what is already known. Explain why the review questions/objectives lend themselves to a scoping review approach.	3-4
Objectives	4	Provide an explicit statement of the questions and objectives being addressed with reference to their key elements (e.g., population or participants, concepts, and context) or other relevant key elements used to conceptualize the review questions and/or objectives.	4
METHODS			
Protocol and registration	5	Indicate whether a review protocol exists; state if and where it can be accessed (e.g., a Web address); and if available, provide registration information, including the registration number.	N/A
Eligibility criteria	6	Specify characteristics of the sources of evidence used as eligibility criteria (e.g., years considered, language, and publication status), and provide a rationale.	5
Information sources*	7	Describe all information sources in the search (e.g., databases with dates of coverage and contact with authors to identify additional sources), as well as the date the most recent search was executed.	4-5
Search	8	Present the full electronic search strategy for at least 1 database, including any limits used, such that it could be repeated.	22
Selection of sources of evidence†	9	State the process for selecting sources of evidence (i.e., screening and eligibility) included in the scoping review.	5
Data charting process‡	10	Describe the methods of charting data from the included sources of evidence (e.g., calibrated forms or forms that have been tested by the team before their use, and whether data charting was done independently or in duplicate) and any processes for obtaining and confirming data from investigators.	5-6
Data items	11	List and define all variables for which data were sought and any assumptions and simplifications made.	6-7
Critical appraisal of individual sources of evidence§	12	If done, provide a rationale for conducting a critical appraisal of included sources of evidence; describe the methods used and how this information was used in any data synthesis (if appropriate).	6

SECTION	ITEM	PRISMA-ScR CHECKLIST ITEM	REPORTED ON PAGE #
Synthesis of results	13	Describe the methods of handling and summarizing the data that were charted.	5-6
RESULTS			
Selection of sources of evidence	14	Give numbers of sources of evidence screened, assessed for eligibility, and included in the review, with reasons for exclusions at each stage, ideally using a flow diagram.	17
Characteristics of sources of evidence	15	For each source of evidence, present characteristics for which data were charted and provide the citations.	6-7 and Table 2
Critical appraisal within sources of evidence	16	If done, present data on critical appraisal of included sources of evidence (see item 12).	18
Results of individual sources of evidence	17	For each included source of evidence, present the relevant data that were charted that relate to the review questions and objectives.	6-9
Synthesis of results	18	Summarize and/or present the charting results as they relate to the review questions and objectives.	6-9 and Tables 2-4
DISCUSSION			
Summary of evidence	19	Summarize the main results (including an overview of concepts, themes, and types of evidence available), link to the review questions and objectives, and consider the relevance to key groups.	9-10
Limitations	20	Discuss the limitations of the scoping review process.	10-11
Conclusions	21	Provide a general interpretation of the results with respect to the review questions and objectives, as well as potential implications and/or next steps.	12
FUNDING			
Funding	22	Describe sources of funding for the included sources of evidence, as well as sources of funding for the scoping review. Describe the role of the funders of the scoping review.	13

JB1 = Joanna Briggs Institute; PRISMA-ScR = Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for Scoping Reviews.

* Where *sources of evidence* (see second footnote) are compiled from, such as bibliographic databases, social media platforms, and Web sites.

† A more inclusive/heterogeneous term used to account for the different types of evidence or data sources (e.g., quantitative and/or qualitative research, expert opinion, and policy documents) that may be eligible in a scoping review as opposed to only studies. This is not to be confused with *information sources* (see first footnote).

‡ The frameworks by Arksey and O'Malley (6) and Levac and colleagues (7) and the JB1 guidance (4, 5) refer to the process of data extraction in a scoping review as data charting.

§ The process of systematically examining research evidence to assess its validity, results, and relevance before using it to inform a decision. This term is used for items 12 and 19 instead of "risk of bias" (which is more applicable to systematic reviews of interventions) to include and acknowledge the various sources of evidence that may be used in a scoping review (e.g., quantitative and/or qualitative research, expert opinion, and policy document).

From: Tricco AC, Lillie E, Zarin W, O'Brien KK, Colquhoun H, Levac D, et al. PRISMA Extension for Scoping Reviews (PRISMA-ScR): Checklist and Explanation. *Ann Intern Med*. 2018;169:467–473. doi: [10.7326/M18-0850](https://doi.org/10.7326/M18-0850).

Appendix 2: Example Search Strategy

MEDLINE

1. Stroke/ OR Ischemic Attack, Transient/ OR Stroke Rehabilitation/ OR (Non-Disabling Stroke* OR Minor Stroke* OR Mini-Stroke* OR Stroke Survivor* OR Transient Brainstem Ischaemia* OR Transient Brainstem Ischemia* OR Transient Cerebral Ischaemia* OR Transient Cerebral Ischemia* OR Transient Ischaemic Attack* OR Transient Ischemic Attack*).ti,ab.
2. Computer-Assisted Instruction/ OR Counseling/ OR Life Style/ OR "Patient Education as Topic"/ OR Risk Reduction Behavior/ OR Secondary Prevention/ OR Self Care/ OR Self-Help Groups/ OR Self-Management/ OR Rehab*.ti. OR (Psychoeducation OR "Psycho-Education").ti,ab.
3. Randomized controlled trial.pt. or controlled clinical trial.pt. or randomized.ab. or placebo.ab. or clinical trials as topic.sh. or randomly.ab. or trial.ti.
4. 1 and 2 and 3
5. exp animals/ not humans.sh.
6. 4 not 5