

A systematic review of rehabilitation interventions that prevent and treat depression after stroke in individuals with aphasia

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Why a systematic review?

- Overall aim is to investigate the **evidence-practice gap** in managing **mood** and **depression** in post-stroke aphasia
- **Systematically** search for evidence within the stroke and aphasia fields
- Based on **mental healthcare models**, we want to know what interventions can **prevent** and **treat depression** in post-stroke aphasia
- Interested in **behavioural type interventions** delivered by various stroke health disciplines e.g SLT, psychology, OT, PT

Overview

- Background **research literature**
- **Stepped psychological care** after stroke
- Research **questions**
- **Method**
- **Results** including adapting stepped psychological care in aphasia rehabilitation
- **Clinical implications**
- Future **research agenda**

We know...

- Depression is **common** after **stroke** – approx one third of the population (Hackett et al.,2000)
 - **high incidence** in post-stroke aphasia (70% at 3 months; 62% at 12 months)
 - major depression **increased from 11% to 33%** across the first 12 months post onset of aphasia (Kauhanen et al., 2000)
- Current Australian stroke outcome sets show **lack of psychological care**
 - Only 6% in acute care and 32% in rehab had a recommended psychology **assessment**
 - Only 32% offered **counselling** (National Stroke Foundation, 2014)

Why a lack of psychological care?

- **shortage** of psychologists (Australian Psychological Society, 2012)
- SLTs and other MDT members report **reduced confidence** in counselling (Vickers et al., 2007) and a **need for training** in psychological care (Sekhon et al., 2015)

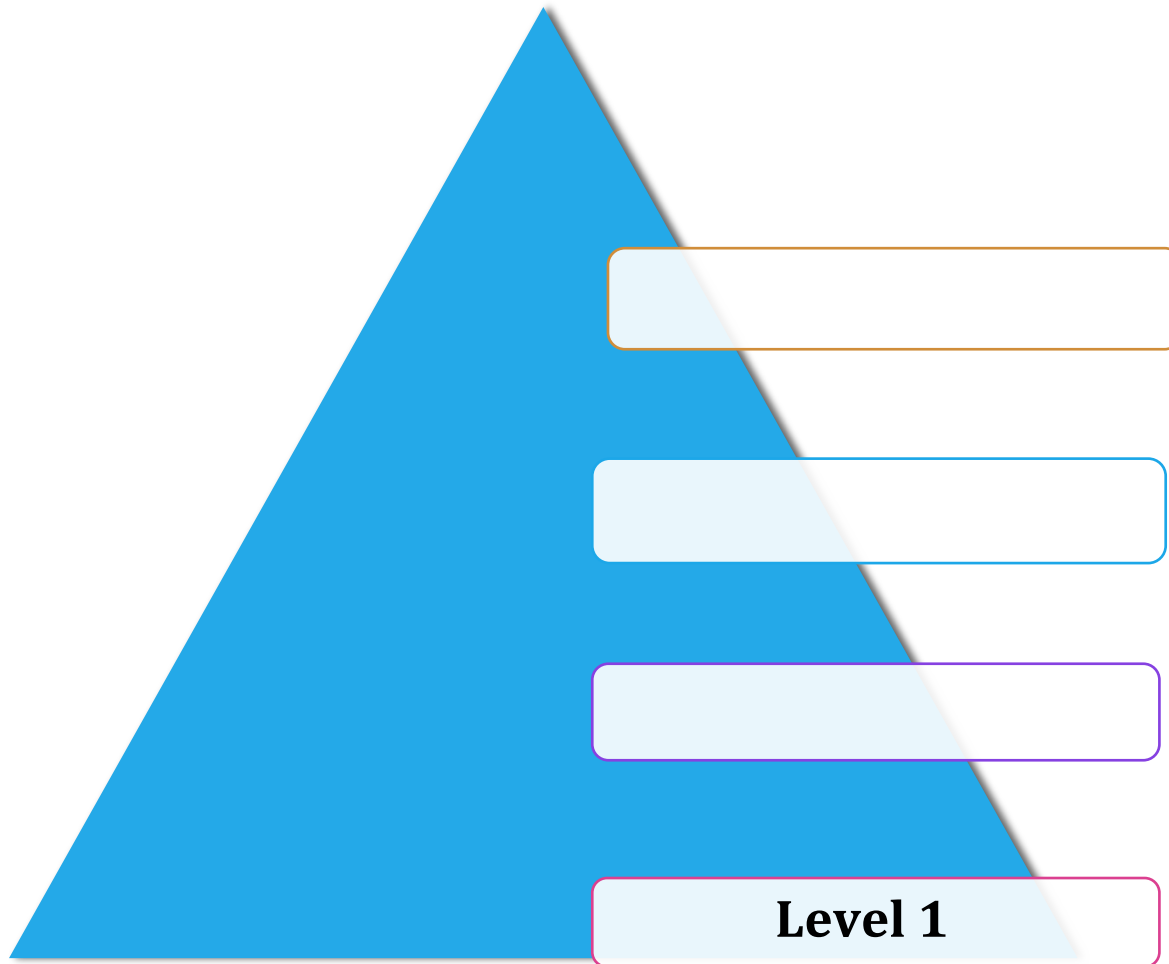
Is **stepped psychological care** after stroke
(Kneebone, 2016) the answer?

What is stepped psychological care? (Kneebone, 2016)

- A **multidisciplinary** model of care to address **psychological problems** after stroke including **depression**
- **4 steps - Level 1 to 4** with intensity and speciality of therapy **increasing** at **higher levels** of care
- **Designed** to be responsive to a person's symptoms, recovery and individual needs
- **Trained** health professionals deliver **mood screening, counselling** and **therapy** at **lower less intense** levels of care

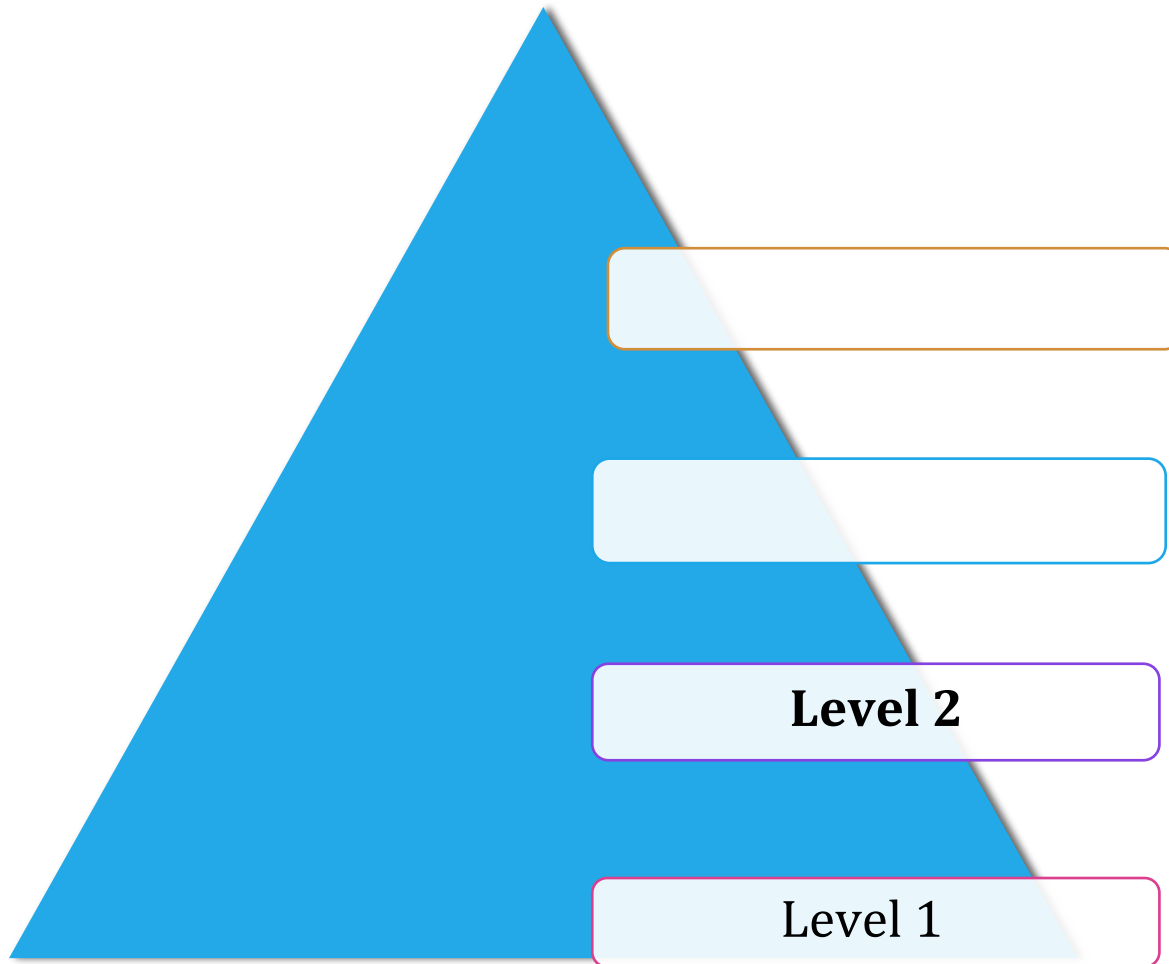
Stepped psychological care after stroke

Level 1



Sub-threshold
problems in mood

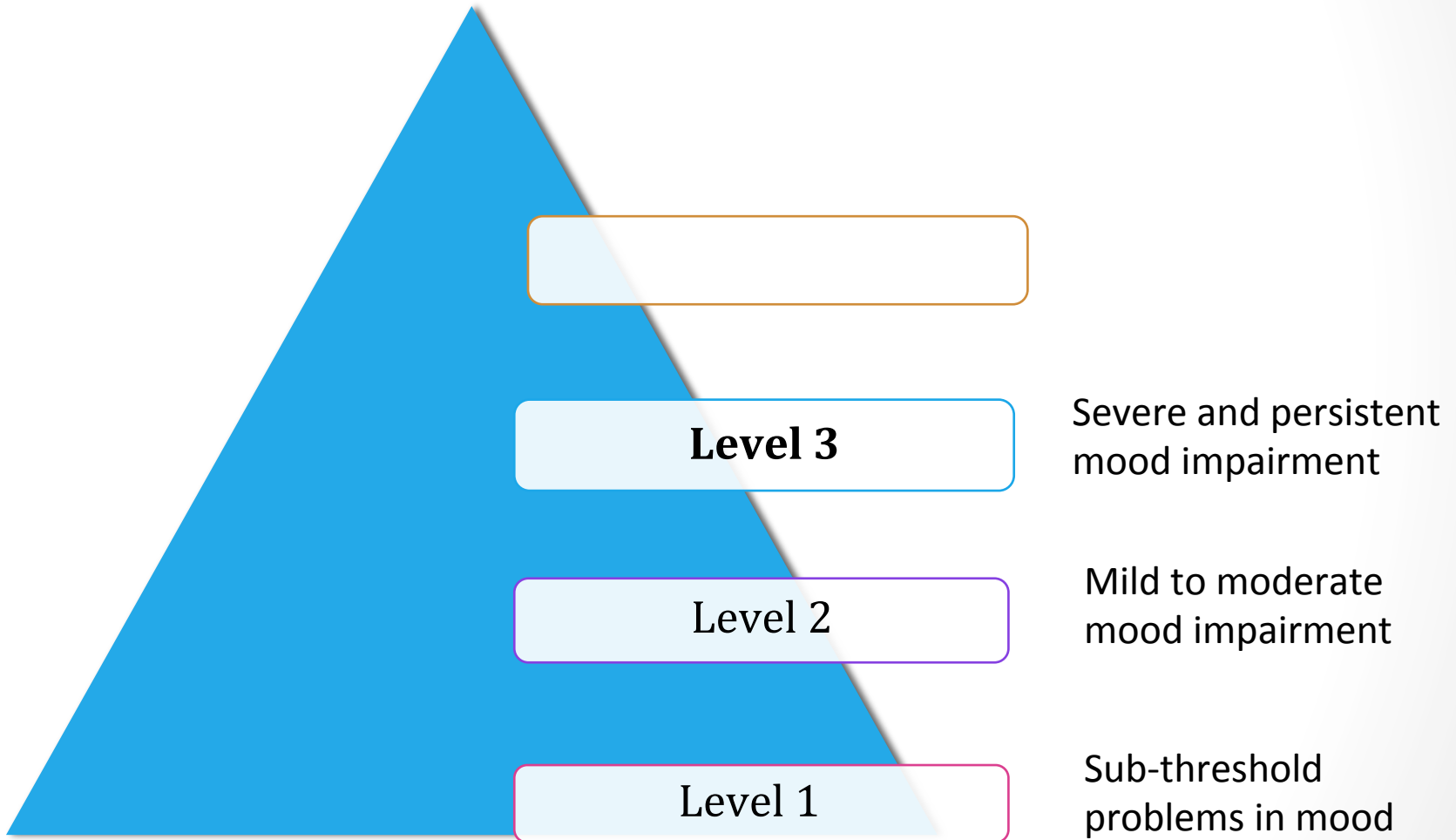
Level 2



Mild to moderate
mood impairment

Sub-threshold
problems in mood

Level 3



Level 4



Level 4

Severe mood impairment and challenging behaviours

Level 3

Severe and persistent mood impairment

Level 2

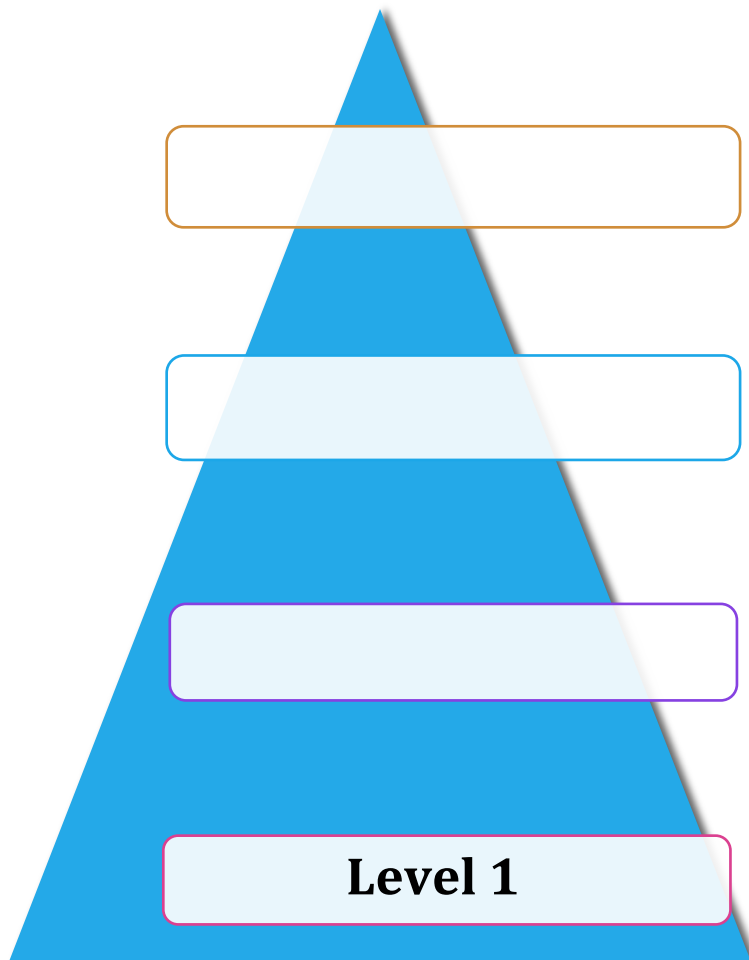
Mild to moderate mood impairment

Level 1

Sub-threshold problems in mood

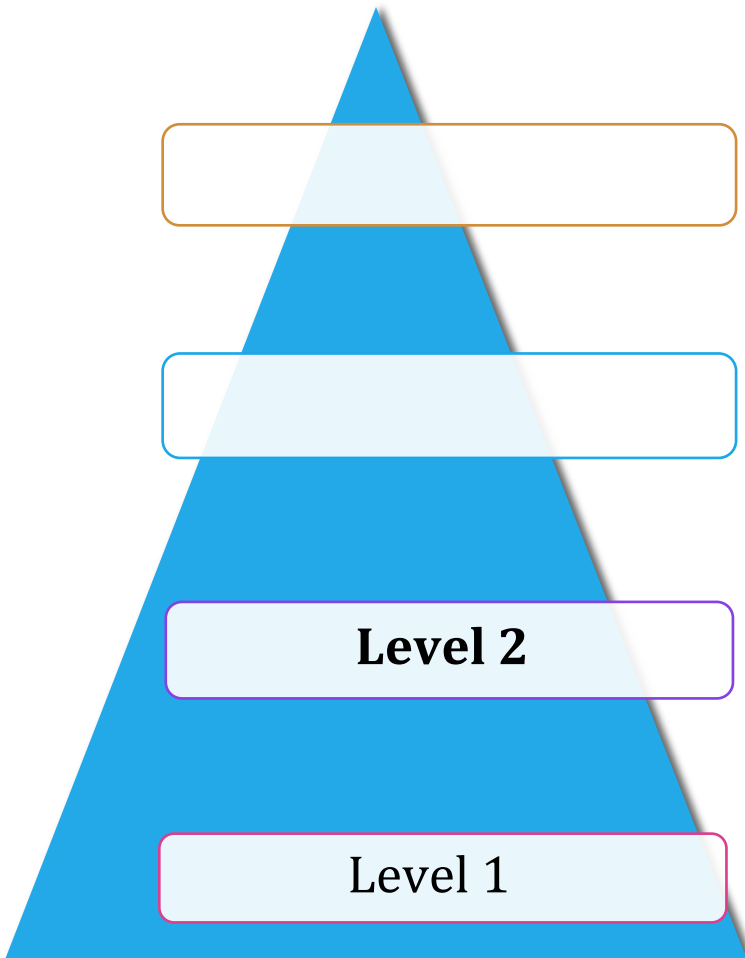
Interventions for stroke population

Level 1



Level 1 Routine assessment; post-stroke psychological information provision and support; prevention strategies

Intervention Level 2

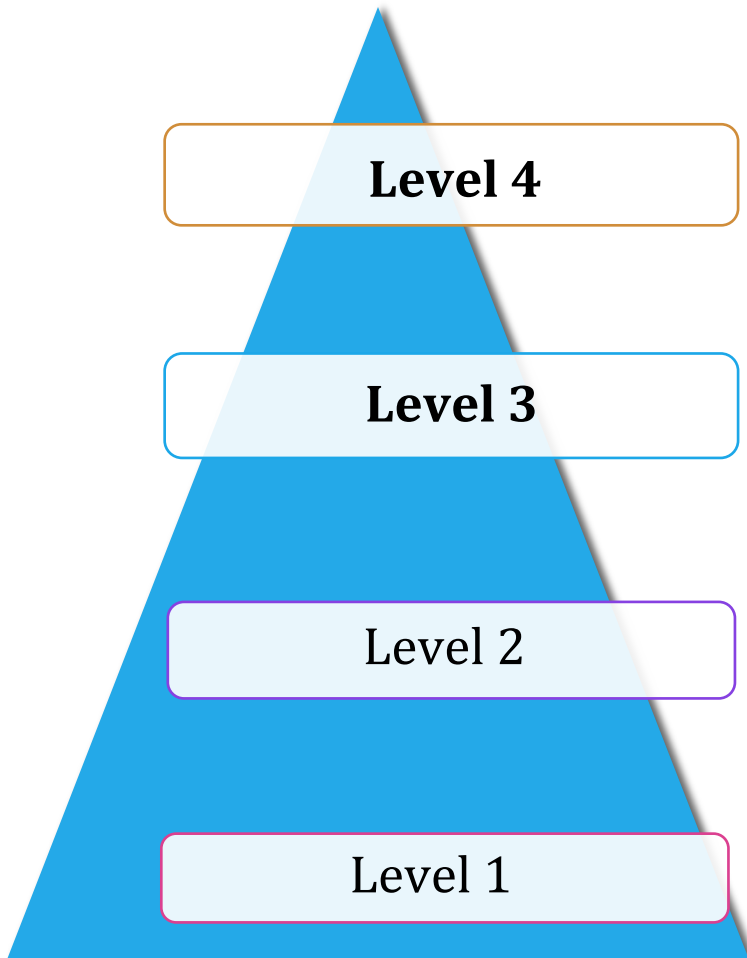


Level 2 modified CBT;
goal setting, relaxation training, antidepressant
medication

Levels 1 & 2 goal setting, problem solving

Level 1 Routine assessment; post-stroke
psychological information provision and support;
prevention strategies

Intervention Levels 3 & 4



Level 4 Behavioural specialist services

Levels 3 & 4 One to one approaches with mental health specialists; clinical psychology & neuropsychology for impaired cognition; antidepressant medication

Level 2 Behavioural activation; mCBT; goal setting, relaxation training, antidepressant medication

Levels 1 & 2 goal setting, problem solving

Level 1 Routine assessment; post-stroke psychological information provision and support; prevention strategies

What is the evidence for interventions in aphasia?

- Which rehabilitation interventions **prevent or treat depression** after stroke for people with aphasia and their significant others?
- Which of these interventions may be **considered for use within a stepped psychological care** model?
- What **communication strategies** were used within interventions?

Method

- Followed the **P**referred **R**eporting of **I**tems for **S**ystematic review and **M**eta-**A**nalyses (PRISMA statement) (Moher et al.,2009)

Method

- **Searched databases** Medline, PsycINFO, CINAHL, Cochrane using 16 expanded terms from the question based on PICO
- **Population** = individuals with post-stroke aphasia and/or significant other, **Intervention** = therapy or treatment, **Comparison** = n/a, **Outcome** = depression

Field: Subject terms: 'stroke' OR 'stroke survivors' OR 'stroke patients'
OR Field: Subject terms: 'aphasia' OR 'dysphasia' OR 'language impairment' OR
'acquired language disorder'
AND Field: Subject terms: 'depression' OR 'depress*' OR 'low mood' OR
'emotional distress' OR 'psychological distress'
AND Field: Subject terms: 'therapy' OR 'therap*' OR 'intervention' OR
'treatment'

- **Hand searched** reference lists and **consulted other researchers** in the field

Inclusion/exclusion criteria

Inclusion criteria

- Rehab intervention for stroke survivors and/or significant others
- Individuals with post-stroke aphasia
- Original data and primary or secondary depression outcomes
- Mixed clinical population: > 25% of sample with stroke and aphasia
- English and peer-reviewed

Exclusion criteria

- Rehab intervention with medical treatment e.g antidepressants
- Participants with underlying neurological conditions e.g dementia

Method

- Eligible studies graded for level of evidence based on the Australian NHMRC guidelines
- Assessed the methodological quality:
- PEDRO scale for RCTs and non-RCTs
- SCED scale for single case designs



Results

Identification

No. of records identified through database searching n= **4,315**

No. of records identified through other sources n=14

No. of records after duplicates removed n=3,160

Screening

No. of records with titles and abstracts screened n=3,160

No. of records excluded based on inclusion/exclusion criteria n=2,721

Eligibility

No. of potentially relevant full text articles evaluated n=439

No. of full text articles excluded n=401

43% of studies had no or inadequate detail of individuals with aphasia within stroke sample n=172

Included

No. of full text articles included for synthesis n= **38**

Summary of interventions

Study design	Number of studies	NHMRC level	PEDRO range /10	SCED range /10
RCT	19	ii	4 - 9	-
Non-RCT	2	iii-2	2 - 4	-
Single case	5	lii-3	-	6 - 10
Case series	8	iv	-	-
Mixed methods	3	iv	-	-

Considered 'high' in methodological quality

16 trials

5 single case

Types of intervention?

- Prevention of depression
 - Depression outcome as a primary measure
 - Prevention – participant group did not present with significant depression, early phase therapy, usually up to 6 months post onset
- Treatment of depression
 - Depression outcome as primary measure
 - Participants fulfilled depression criteria within the study
- Stroke rehabilitation
 - Depression outcome as a secondary measure

Interventions

Type of intervention	Number of studies	Content of intervention
Preventive	4	1 x psychosocial and communicative functioning 3 x psychosocial functioning
Treatment	3	3 x psychosocial functioning
Stroke rehabilitation	31	9 x Communicative 8 x psychosocial 7 x physical 5 x multidisciplinary rehabilitation and transition 2 x cognitive

Prevention

Preventive interventions (n=4)

- improvements in depression outcomes over time in 3 of 4 studies but not statistically significant

Treatment

Treatment interventions

- strongest evidence found for behavioural therapy (Thomas et al.,2013)
- some evidence for web-based psychosocial program (Smith et al.,2012)
- some evidence for telephone-based problem-solving (Pfeiffer et al.,2014)

Stroke rehabilitation

Rehabilitation for communicative functioning

- mixed results; positive trends in mood measures but no statistically significant findings
 - biographic-narrative treatment (Corsten et al., 2015)
 - communication partner training (Saldert et al., 2013)
 - communication group (Brumfitt & Sheeran, 1997)

Rehabilitation for psychosocial functioning

- improved mood but not statistically significant in use of
 - self-management book (Jones et al., 2009)
- positive qualitative themes from
 - aphasia choir (Tamplin et al., 2013)
 - aphasia carer support group (Pound et al., 2001)

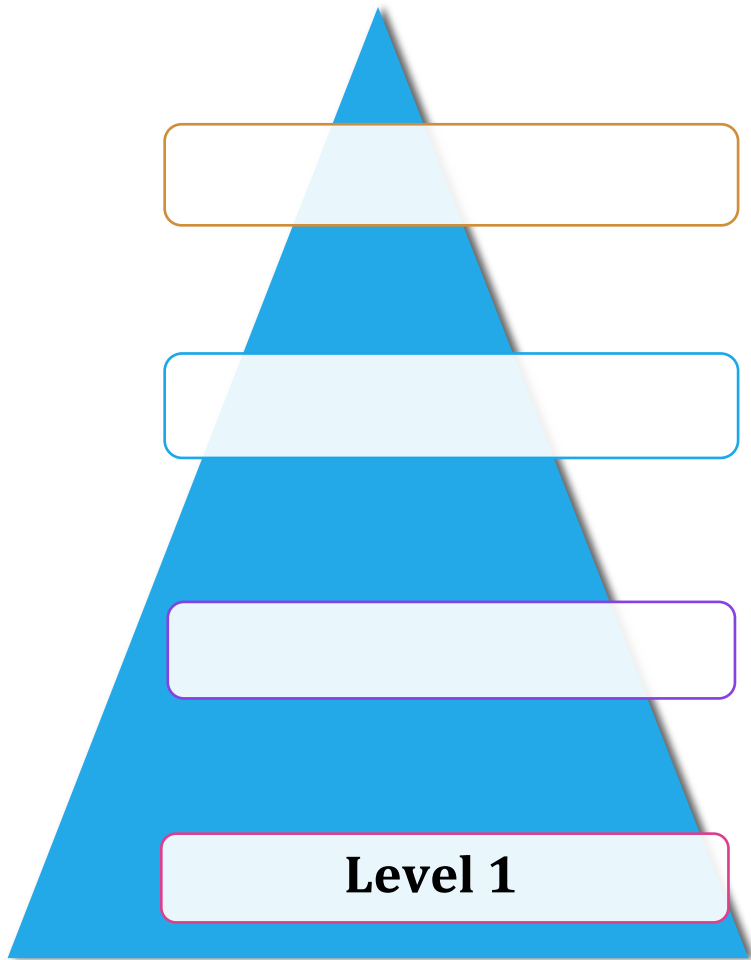
Multidisciplinary rehabilitation and transition

- statistically significant less depressive symptoms
 - higher goal achievement score (GAS) (Brock et al., 2009)

What does stepped psychological care look like for people with aphasia?

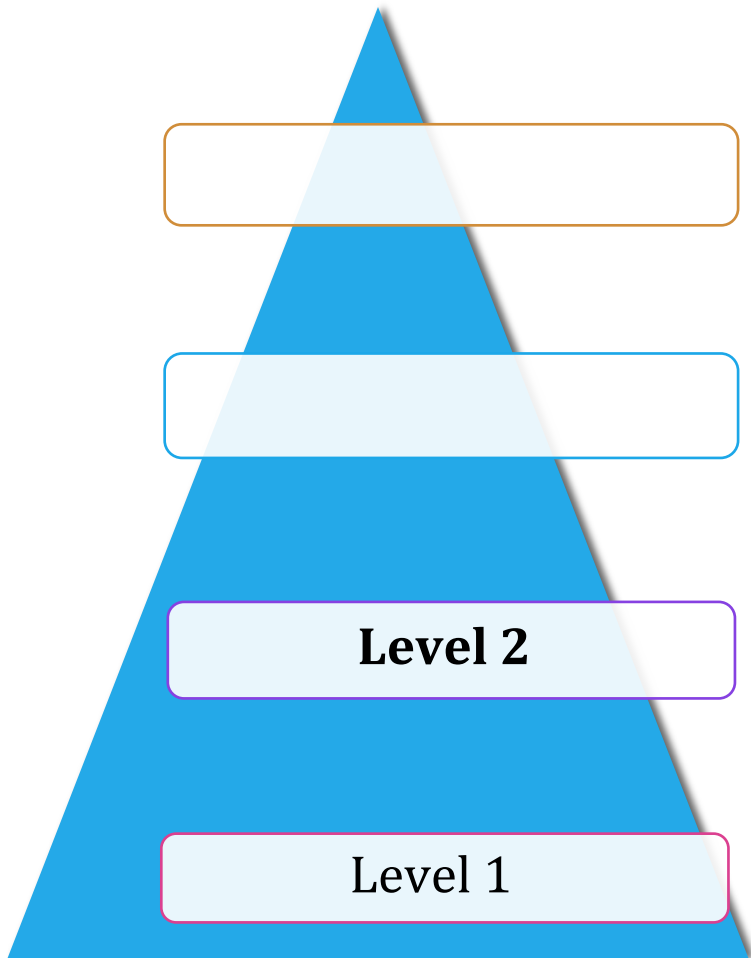
- So based on the findings of this systematic review the interventions with strongest evidence are included within the model

Translating stepped psychological care for aphasia



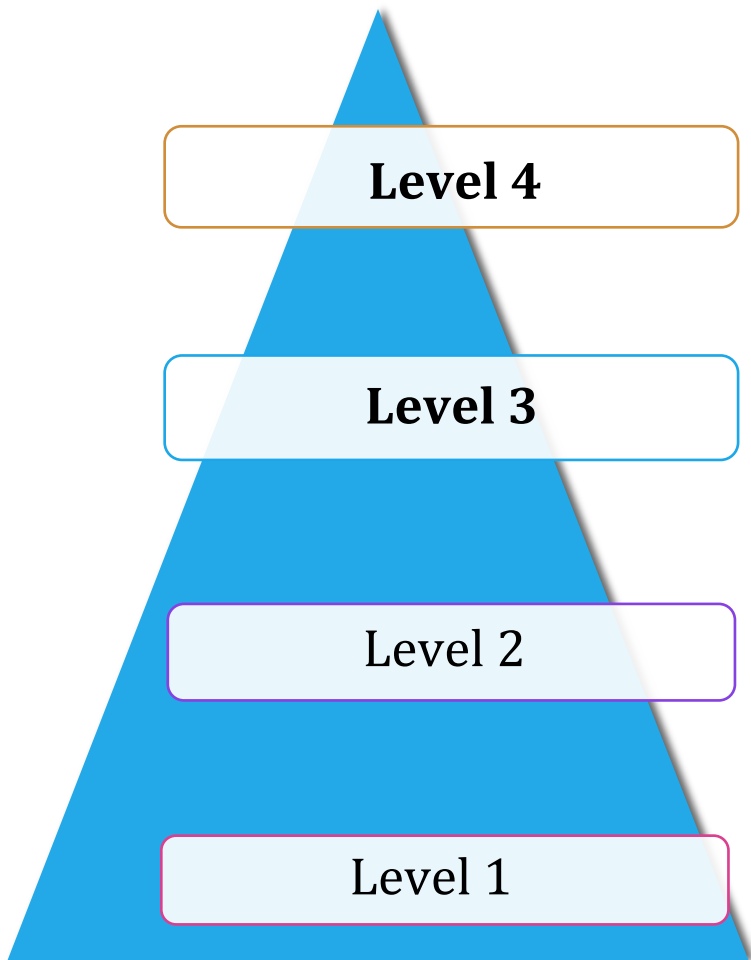
Level 1 Routine assessment; psychological information provision and group support; biographic-narrative therapy; communication partner training; aphasia choir; self-management workbook; goal setting.

Translating stepped psychological care for aphasia



Level 2 Behavioural therapy; psychosocial support and problem-solving; goal setting; antidepressant medication

Translating stepped psychological care for aphasia



Level 4

Level 4 Behavioural specialist service

Level 3

Levels 3 & 4 One to one therapy approaches; Mental health specialists; clinical psychology and if cognition impaired then neuropsychology also; one to one therapy approaches; antidepressant medication

Level 2

Level 1

Communication strategies

- Tailored to **participants' needs and interests** (Corsten et al., 2015; Thomas et al., 2013)
- **Augmentative communication** strategies such as pictograms, visual analogue scales, flip charts, enlarged font size, simplified language
- **Assistance** to PWA by significant other e.g reading out questionnaire items, encouraging response such as gesture
- **Different modes** of delivery e.g web, telephone, CDs, audio and/or video recordings, online talking, email and technical assistance (Smith et al., 2015)

Clinical implications

- **Stepped psychological care** in post-stroke aphasia requires further investigation to evaluate **barriers** and **facilitators** to translation in clinical practice
- Stroke staff require **support and training** to deliver assessment and therapeutic interventions

Future research agenda

- **Include** PWA within stroke studies and to **adequately describe their communication and data sets**
- **standardised** report of depression using psychometrically adequate tools and clinical interviews
- **consideration of timing** of intervention i.e early for prevention versus chronic phase
- parameters for **clinical significance** of intervention on mood scores

Thank you!

Questions ?

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References

- 1. Kauhanen ML, Korpelainen JT, Hiltunen P, Määttä R, Mononen H, Brusin E, et al. Aphasia, Depression, and Non-Verbal Cognitive Impairment in Ischaemic Stroke. *Cerebrovascular Diseases* 2000;10(6):455-61.
- 2. National Stroke Foundation. National Stroke Audit Rehabilitation Services Clinical Audit Report. Melbourne, Australia: National Stroke Foundation; 2014 [cited 2015 October 18]; Available from: <https://www.strokefoundation.com.au>
- 3. Australian Psychological Society (2012). Psychology 2020. The 2011-2012 presidential initiative on the future of psychological science in Australia. 2012 [cited 2015 February 2]; Available from: http://www.psychology.org.au/Assets/Files/2012_APS_PIFOPS_WEB.pdf
- 4. Vickers, KS, Kircher, KJ, Smith, MD, Petersen, LR & Rasmussen, NH. Health behaviour counseling in primary care: provider-reported rate and confidence. *Family Medicine* 2007; 39(10): 730-735.
- 5. Sekhon JK, Douglas J, Rose ML. Current Australian speech-language pathology practice in addressing psychological well-being in people with aphasia after stroke. *International Journal of Speech-Language Pathology* 2015;17(3):252-62.
- 6. NICE (2009) Depression in Adults with a Chronic Physical Health Problem: Treatment and Management. NICE clinical guideline 91. Retrieved February 7, 2015 from www.nice.org.uk/CG91 [NICE guideline]
- 7. Moher D, Liberati A, Tetzlaff J, Altman DG, The PRISMA Group (2009) Preferred Reporting Items for Systematic Reviews and Meta-Analyses: The PRISMA Statement. *PLoS Med* 6(7): e1000097. doi:10.1371/journal.pmed.1000097
- 8. National Health Service Improvement. Psychological care after stroke: Improving stroke services for people with cognitive and mood disorders. U.K:National Health Service Improvement; 2011 [cited 2015 October 18]; Available from: <http://www.slideshare.net>
- 9. Kneebone, II, Stepped psychological care after stroke. *Disability and Rehabilitation* 38(18): 1836-1843.
- 10. Liberati A, Altman DG, Tetzlaff J, et al. The PRISMA statement for reporting systematic reviews and meta-analyses of studies that evaluate health care interventions: explanation and elaboration. *Annals of internal medicine* 2009;151:65-94.
- 11. National Health and Medical Research Council. How to review the evidence: Systematic identification and review of the scientific literature. Canberra: National Health and Medical Research Council; 2000.

- 12. PEDro Physiotherapy evidence database [Internet]. NSW, Australia: Centre of Evidence-based Physiotherapy (CEBP), The George Institute for Global Health; 1999- [cited 2016 February 8]: Available from: www.pedro.org.au
- 13. Tate, L, McDonald, S, Perdices, M, Togher, L, Schultz, R, Savage, S. Rating the methodological quality of single-subject designs and n-of-1 trials: Introducing the Single-Case Experimental Design (SCED) Scale. *Neuropsychological Rehabilitation* 2008;18:385–401.
- 14. Thomas, SA, Walker, MF, Macniven, JA, Haworth, H, Lincoln, NB. (2013). Communication and Low Mood (CALM): a randomized controlled trial of behavioural therapy for stroke patients with aphasia. *Clinical Rehabilitation* 2013;27(5):398-408.
- 15. Smith, GC, Egbert, N, Dellman-Jenkins, M, Nanna, K, Palmieri, PA. Reducing depression in stroke survivors and their informal caregivers: a randomized clinical trial of a Web-based intervention. *Rehabilitation Psychology* 2012;57(3):196-206.
- 16. Pfeiffer K, Beische D, Hautzinger M, Berry JW, Wengert J, Hoffrichter R, et al. Telephone-based problem-solving intervention for family caregivers of stroke survivors: a randomized controlled trial. *Journal of consulting and clinical psychology*. 2014;82(4):628-43.
- 17. Corsten, S, Schimpf, EJ, Konradi, J, Keilmann, A, Hardering, F. The participants' perspective: How biographic-narrative intervention influences identity negotiation and quality of life in aphasia. *International Journal of Language & Communication Disorders* 2015;50(6):788-800.
- 18. Saldert, C, Backman, E, Hartelius, L. Conversation partner training with spouses of persons with aphasia: A pilot study using a protocol to trace relevant characteristics. *Aphasiology* 2013;27(3):271-292.
- 19. Brumfitt, SM, Sheeran, P. An evaluation of short-term group therapy for people with aphasia. *Disability And Rehabilitation* 1997;19(6):221-230.
- 20. Jones, F, Mandy, A, Partridge, C. Changing self-efficacy in individuals following a first time stroke: preliminary study of a novel self-management intervention. *Clinical Rehabilitation* 2009;23(6):522-533.
- 21. Tamplin, J, Baker, FA, Jones, B, Way, A, Lee, S. 'Stroke a Chord': The effect of singing in a community choir on mood and social engagement for people living with aphasia following a stroke. *NeuroRehabilitation* 2013;32(4): 929-941.
- 22. Pound, C., Parr, S. & Duchan, J. Using partners' autobiographical reports to develop, deliver, and evaluate services in aphasia. *Aphasiology* 2001; 15(5):477-493.
- 23. Brock, K, Black, S, Cotton, S, Kennedy, G, Wilson, S, Sutton, E. (2009). Goal achievement in the six months after inpatient rehabilitation for stroke. *Disability And Rehabilitation* 2009; 31(11):880-886.