Institution:
University of Central Lancashire

Unit of Assessment:
3 – Allied Health Professions, Dentistry, Nursing and Pharmacy

Title of case study: ***Transforming the assessment and management of stroke survivors' psychological and emotional needs to improve recovery***

Period when the underpinning research was undertaken:
Jan 2000 to 2020

Details of staff conducting the underpinning research from the submitting unit:

Name(s):	Role(s) (e.g. job title):	Period(s) employed by submitting HEI:
Caroline Watkins	Professor of Stroke and Older People's Care/Faculty of Health and Wellbeing	1st January 2002-to date
Liz Lightbody	Director of Research and Innovation	1st April 2002-to date
Emma Holland	Professor of Stroke Care and Improvement	13th October 2014-to date
Kulsum Patel	Research Associate	17th May 2010-to date
Maree Hackett	Senior Research Assistant	1st September 2012-to date
Andrew Clegg	Professor in Epidemiology Professor of Health Services Research	1st September 2015-to date

Period when the claimed impact occurred:
August 2013-Present

Is this case study continued from a case study submitted in 2014? No

1. Summary of the impact (indicative maximum 100 words) 111

Research by the Stroke Research Team has improved how psychological support is provided to people after a stroke. This work highlighted the substantial psychological needs post-stroke such as depression, anxiety and emotionalism. More than half of stroke survivors experience disabling psychological problems; 7 million worldwide and 33,000+ in the UK annually. The Stroke Team have revolutionised the assessment and management of these patients by developing reliable mood screening tools, enabling and expediting intervention and support. Motivational interviewing, an existing talk-based therapy, was specifically adapted for stroke survivors and is now recommended in national and international guidelines. The research has created new collaborations between stroke teams and psychological services and the Stroke Team have developed new ways of training staff to ensure they have the correct skills to provide tailored quality care. The management of psychological problems after stroke has been transformed with new therapies and changes to prescribing practice. The use of fluoxetine, a commonly prescribed anti-depressant has been reduced following the Stroke Team's research, which showed increased frequency of bone fractures, negative impacting patients' well-being.

2. Underpinning research (indicative maximum 500 words)

Prior to the Stroke Team's research there was a lack of good-quality evidence to prevent and treat psychological problems following stroke; therefore, psychological care fell below recognised standards.

Half of stroke survivors will experience psychological problems such as depression, anxiety, emotionalism and fatigue. The Stroke Team's systematic reviews showed that depression affects half of stroke survivors in the first year, with one-third affected at any time following a stroke, and a quarter of stroke survivors experience anxiety. These psychological problems are associated with poorer outcomes, negatively impacting patients' recovery.

In order to improve recovery, simple, cost-effective methods are required to improve the identification and management of psychological problems. In terms of identification, the

Stroke Team developed the Signs of Depression Scale (SODS) screening tool and have shown the SODS and the one-item version of the Yale-Brown Obsessive Compulsive Scale ("Do you often feel sad or depressed?"); are reliable for detecting depression in patients following stroke.

In terms of management, the Stroke Team's research highlighted significant gaps in the evidence supporting the management of psychological problems in stroke survivors. The Stroke Team's contribution to Cochrane systematic reviews on depression [1, 2], anxiety and emotionalism showed a need for good-quality evidence for psychological problems after stroke. The systematic review of interventions for preventing depression found the first talk-based psychological intervention to show a positive outcome was the Stroke Team's Motivational Interviewing study. Motivational interviewing helps prevent depression, and potentially reduce death, after stroke.

The Stroke Team conducted a single-centre randomised controlled trial (RCT) of motivational interviewing (2007) [3, 6], a talk-based psychological therapy, which was adapted from its traditional use in behaviour change, to support psychological adjustment after stroke. This research is one of only two studies of motivational interviewing in managing depression in stroke patients. This RCT showed that people who received motivational interviewing in addition to their usual care, early after stroke, were significantly less likely to have depression up to a year after stroke, compared to people who received usual care alone, which generally included no psychological therapy. Receiving motivational interviewing was also associated with fewer deaths: for every 12 people receiving the motivational interviewing intervention, 1 person was less likely to die [6]. A subsequent feasibility study (2012-2013) [4], part-funded by the Northern Stroke Fund, showed that clinical NHS staff were able to deliver motivational interviewing. These results have informed the COnfirming the Mechanism of Motivational Interviewing Therapy after Stroke (COMMITS) study which is now recruiting 1200 participants across 15 UK sites.

Multicentre international randomised controlled trials (involving 5,907 participants) did not support the routine antidepressant (fluoxetine) either for the prevention of post-stroke depression or to promote recovery of function, but found their use increased the risk of bone fractures (1.4% absolute excess risk) in patients. [5]

Improving care through staff training and service organisation

The Stroke Research Team at the University of Central Lancashire is the UK's only nurse-led stroke research unit. Since 2002, the Stroke Team have worked closely with national and international partners to improve care and education standards. In the ADOPTS study (2015-2017) (Accelerating Delivery of Psychological Therapies after Stroke) funded by the National Institute for Health Research Collaboration for Leadership in Applied Health Research and Care North West Coast, the Stroke Team developed and implemented an evidence-based pathway of psychological support, incorporating cross-service collaboration and training for staff. There was evidence for increased psychological support for patients by 6-months post-stroke following implementation of the pathway. Whilst ADOPTS was not powered to detect a change in mood scores between the intervention and control groups, there was a trend towards less depression in the intervention group.

3. References to the research (indicative maximum of six references)

All papers listed below are peer-reviewed.

1. Allida S, Cox KL, Hsieh CF, House A, Hackett ML (2020) Pharmacological, psychological and non-invasive brain stimulation interventions for preventing depression after stroke. Cochrane Database of Systematic Reviews Issue 5. Art. No.: CD003689 DOI: DOI: 10.1002/14651858.cd003689.pub4
2. Allida S, Cox KL, Hsieh CF, Lang H, House AO, Hackett ML (2020) Pharmacological, psychological, and non-invasive brain stimulation interventions for treating

depression after stroke. Cochrane Database of Systematic Reviews Issue 1. Art. No.: CD003437. DOI: DOI: 10.1002/14651858.CD003437.pub4
3. Watkins CL, Auton MF, Lightbody CE, et al. (2007) Motivational interviewing early after acute stroke: a randomized controlled trial. Stroke, 38: 1004-1009 DOI: 10.1161/01.STR.0000258114.28006.d7
4. Patel K, Watkins CL, Sutton CJ, Holland E-J, Benedetto V, Auton, MF, Barer D, Chatterjee K, Lightbody CE (2018) Motivational interviewing for low mood and adjustment early after stroke: a feasibility randomised trial. Pilot and Feasibility Studies, (2018) 4:152. DOI: 10.1186/s40814-018-0343-z
5. Hackett, M , Dennis, M, Forbes, J, Graham, C, Hankey, G, House, A, Lewis, S, Lundström, E, Sandercock, P et al (2019) Effects of fluoxetine on functional outcomes after acute stroke (FOCUS): a pragmatic, double-blind, randomised, controlled trial. The Lancet, 393 (10168). pp. 265-274. ISSN 0140-6736 DOI: DOI: 10.1016/S0140-6736(18)32823-X
6. Watkins CL, Wathan JV, Leathley MJ, et al. (2011) The 12-month effects of early motivational interviewing after acute stroke: a randomized controlled trial. Stroke, 42: 1956-1961 DOI: DOI: 10.1161/STROKEAHA.110.602227

4. Details of the impact (indicative maximum 750 words)

Across the world, 20 million people including 100,000 in the UK, will experience a stroke annually, of whom two-thirds will survive. One in three stroke survivors experience depression, particularly within the first year, and this increases cardiovascular-related morbidity and mortality, whilst also contributing to further NHS costs. Emotional difficulties directly and indirectly reduce quality-of-life for the patient by hindering post-stroke activities like taking medication, engaging in rehabilitation, maintaining social networks, and returning to work. Improving psychological care after stroke enhances patients' health and quality-of-life and reduces burden on NHS services.

Impact on practice

The Stroke Team validated two screening tools, SODS and Yale-Brown Obsessive-Compulsive Scale, to reliably detect depression in patients following stroke. This validation has led to greater screening for depression amongst stroke survivors. These screening tools have now been implemented in clinical stroke pathways by numerous NHS stroke services including Cornwall, Dartford, Manchester, Lancashire, London and Glasgow. They are also used in the Netherlands and in Germany [D].

The Royal College of Physicians National Clinical Guideline for Stroke now recommend that **"People with or at risk of depression or anxiety after stroke should be offered brief psychological interventions such as motivational interviewing…before considering antidepressant medication"** [A] The Australian Clinical Guidelines for Stroke Management, which is also used in New Zealand, similarly recommend that **"…psychological strategies (e.g. problem solving, motivational interviewing) may be used to prevent depression."** [B]

The Stroke Team's research, as one of the only sources of evidence on motivational interviewing managing depression after stroke, is increasingly being used in practice and in guidelines. Motivational interviewing training and principles are now being widely implemented by and for stroke staff. NHS stroke services in Hereford, Cornwall, Manchester, Liverpool and Glasgow have implemented the training. Internationally it is found in online training by the Stroke Foundation in Australia, by stroke nurses in the Netherlands and in professional stroke education in the Heart and Stroke Foundation in Canada [D].

By adapting motivational interviewing from its original use in behaviour change to adjustment, the clinical impact was extended beyond stroke. For example, the Stroke Team were approached by HIV nurses in Atlanta, USA to provide training in motivational interviewing and guidance into incorporating motivational interviewing within their consultations. They have appreciated Stroke Team's contribution, stating: **"We and our**

study participants have truly benefitted from your expertise and input into our motivational adjustment intervention." [J]

The ADOPTS trial has improved care through staff training and the organisation of services. An evidence-based pathway was developed that enhanced access to psychological support following stroke. The implementation of this pathway resulted in fostering collaborative working between multidisciplinary staff in stroke and generic mental health services, such as Improving Access to Psychological Therapies (IAPT), who were previously seen and felt to be working in silos. Working alongside these services to support the adoption of best practice the research resulted in an increased awareness, better networking and peer-support between the services which previously had minimal collaboration. These new collaborations stimulated the creation of innovative solutions for the provision of psychological support post-stroke. As one IAPT psychological therapist reported **"I bumped into someone from the stroke team who I met through ADOPTS and we agreed to meet up and try to help each other."** [I] A stroke occupational therapist said: **"I asked [IAPT] if they could come and talk about mental health, and obviously stroke-related, and how we could help patients."** [I] This innovative model has now been widely employed across north-west England, resulting in increased awareness and collaboration resulting in ADOPTS becoming a shortlisted finalist for the North West Coast Research and Innovation Awards.

Impact on practitioners

Training developed and implemented as part of the ADOPTS research, underpinned by the screening and interventions research, has increased the knowledge and skills among stroke and IAPT teams in identifying and managing psychological problems after stroke. The training improved stroke teams' psychological awareness, IAPT teams' stroke awareness and facilitated better psychological support for stroke survivors. Training was initially delivered to 152 staff across six NHS Trusts (Countess of Chester Hospital NHS Foundation Trust, East Lancashire Hospitals NHS Trust, Wirral University Teaching Hospital NHS Foundation Trust, Lancashire Teaching Hospitals NHS Trust, Cheshire and Wirral Partnership NHS Foundation Trust, Lancashire and South Cumbria NHS Foundation Trust). The training was well received by participants with one IAPT practitioner stating: **"In the training, thinking about the way we communicate… I found [it] really useful… to adapt our therapies."** Some stroke services and psychological services have cascaded the training, extending its reach beyond the staff trained within ADOPTS. A stroke senior occupational therapist said, **"I've incorporated it into in-service training for therapy staff, because things around psychological impact weren't really there, and the feedback's been really positive."** The training has since been endorsed by the UK Stroke Forum for Education and Training which ensures high quality and relevant training for stroke practitioners and is accessible across the UK. Following ADOPTS, we have been invited to teach on the IAPT course around long-term stroke recovery conditions. Training has also been delivered in areas beyond those included in the study in Cheshire and Wirral Partnership NHS Foundation Trust and North West Boroughs Healthcare NHS Foundation Trust, increasing the knowledge and skills of IAPT staff across the North West region.

Impact on patients

There have been national and international implementations of the work on mood screening, motivational interviewing therapy and antidepressants. This has resulted in substantial impacts on patient care and survival after stroke. Patients who received motivational interviewing in the Stroke Team's research said they found it beneficial: **"It helps me get things clearer in my mind… stops me sitting and worrying on things,"** While another patient stated **"It's been worthwhile talking to someone… it's been great just talking through things because you can talk with family but they don't understand certain things."** [I]

Stroke and IAPT staff felt that stroke survivors, over 1500 per year across the services in which ADOPTS was implemented, benefited from the model. One stroke occupational therapist stated that **"The training brought their [patients] psychological wellbeing to the forefront … they're hopefully getting more holistic care."** This is corroborated by a stroke survivor who took part in the study and who benefited from an IAPT referral resulting in improved coping methods and an increase in confidence: **"I ended up being referred to Mindsmatter, then attending several group sessions…I know the sessions were a benefit to me. They have helped me in developing my coping methods… I now have more confidence and acceptance of what I can achieve since my stroke."** [I]

Reducing the use of fluoxetine

The FOCUS study showed a 1.4% absolute excess risk of bone fractures with the prescription of fluoxetine. This has led to the antidepressant, which was commonly used to manage post stroke depression, being prescribed less. The study has been cited in American and Canadian clinical guidelines for stroke management to guide practitioners on the use of antidepressants after stroke [F, G]. The guidelines state that the antidepressant fluoxetine does not have an effect on functional recovery. The use of the antidepressant fluoxetine is now increasingly avoided due to evidence from the Stroke Team's research showing its use increases the risk of adverse effects and alternative antidepressants are now considered in the first instance [H].

5. Sources to corroborate the impact (indicative maximum of 10 references)

A. "Royal College of Physicians Intercollegiate Stroke Working Party. National Clinical Guideline for Stroke 5th Edition 2016." Sections 4.10.1 (Anxiety, depression and psychological distress), 4.10.2 (Emotionalism), 4.15 (DISTURBANCEs of mood and emotional behaviour), 4.15.2 (Emotional lability), 4.15.3 (Preventing post-stroke depression)
B. "Guidelines for the Early Management of Patients with Acute Ischemic Stroke: 2019 Update to the 2018 Guidelines for the Early Management of Acute Ischemic Stroke: A Guideline for Healthcare Professionals From the American Heart Association/American Stroke Association"
C. "National Stroke Foundation (Australia). Clinical guidelines for stroke management 2017." Sections 14.2 (Treatment for Emotional Distress), 14.3 (Prevention of depression), 14.4 (Treatment of depression)
D. Email testimonies from various stroke services confirming use of Yale and/or SODS in screening pathway, MI training for stroke staff and example of use in practice
E. "Psychological Management of Stroke" 2012 John Wiley & Sons, Ltd
F. "The Management of Stroke Rehabilitation: A Synopsis of the 2019 U.S. Department of Veterans Affairs and U.S. Department of Defense Clinical Practice Guideline" Annals of Internal Medicine Vol. 171 No. 12 December 2019
G. "Canadian Stroke Best Practice Recommendations: Mood, Cognition and Fatigue following Stroke, 6th edition update 2019" International Journal of Stroke 2020, Vol. 15(6) 668–688
H. Email testimony describing change in prescribing habits of fluoxetine
I. Patient and practitioner testimonials
J. Testimonial from Assistant Director of Clinical and Social Science Integration, Emory Center for AIDS Research, Atlanta, USA