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## A Framework to Support Cognitive Behavior Therapy for Emotional Disorder After Stroke

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*Emotional disorders are common after stroke, but lacking is a complete framework to inform their treatment with cognitive behavioral therapy (CBT). This paper describes such a framework. It considers modification of CBT in light of cognitive and communication disability, and the involvement of carers in treatment, and presents brief case studies to illustrate the different elements of the framework. The development of a modified CBT should form the foundation for randomized controlled trials (RCT) to support treatment in this population. Service delivery issues include pathways to treatment, therapist confidence, and the overall positioning of CBT within stroke care.*

A stroke is a medical emergency that occurs when there is a sudden loss of blood supply to the brain (Lincoln, Kneebone, MacNiven, & Morris, 2012). Around 25% of those affected by stroke die within a month (Wolfe, 2000). In those who survive, the deprivation of blood supply results in brain damage, the consequences of which can include physical or cognitive (memory, concentration) deficits, and language disorder; up to 70% experience cognitive deficits (Lesniak, Bak, Czepiel, Seniow, & Czlonkowska, 2008; Nys et al., 2007) and about one-third of all people who experience a stroke develop aphasia (Engelter et al., 2006; Laska, Hellblom, Murray, Kahan, & von Arbin, 2001). Five years after stroke approximately a third of those affected are moderately to severely disabled (Wilkinson et al., 1997).

Given these circumstances, it is understandable that emotional difficulties after stroke are common. Point prevalence rates for depression are around 31% (Hackett & Pickles, 2014) and between 18% and 25% for significant anxiety (Campbell Burton et al., 2012). Posttraumatic stress reactions arise for 10% to 30% of patients (Bruggimann et al., 2006; Field, Norman, & Barton, 2008; Sembi, Tarrier, O'Neill, Burns, & Faragher, 1998) and up to 60% of those with stroke develop a fear of falling (Watanabe, 2005). Other commonly encountered fears include that of having another stroke; of not regaining functional abilities such as swallowing, continence, walking, and language; of not being able to return to one's own home or to driving or work (Lincoln et al., 2012). Less common fears encountered clinically include

those influenced by spatial neglect (e.g., the fear of "falling into an abyss") and those specific to individual premorbid function (e.g., "not being able to ice skate proficiently"). Anger difficulties, ranging from irritability to verbal and physical aggression, are also common after stroke, and occur in 17% to 35% of patients in the acute phase post-stroke (Aybek et al., 2005; Caeiro, Ferro, Santos, & Figueira, 2006; Kim, Choi, Kwon, & Seo, 2002).

Emotional disturbance after stroke can have an impact on rehabilitation outcome. Depression, for instance, is associated with longer hospital stays, reduced participation in rehabilitation, increased physical impairment and handicap, as well as increased mortality (Ebrahim, Barer, & Nouri, 1987; Herrmann, Black, Lawrence, Szekely & Szalai, 1998; House, Knapp, Bamford, & Vail, 2001; Morris, Raphael, & Robinson, 1992; Morris, Robinson, Andrzejewski, Samuels, & Price, 1993; Parikh et al., 1990; Sinyor et al., 1986). Anxiety likely contributes to poorer adaptive functioning, quality of life, and relationships (Åström, 1996; Carod-Artal & Egidio, 2009; Ferro, Caeiro, & Santos, 2009; West, Hill, Hewison, Knapp, & House, 2010).

The view that CBT should be efficacious in people with depression after stroke is supported by studies on patients with a range of acquired brain injuries (Stalder-Lüthy et al., 2013; Waldron, Casserly, & O'Sullivan, 2012) and those with other neurological conditions such as multiple sclerosis (Hind et al., 2014) and Parkinson's disease (Armento et al., 2012; Dobkin et al., 2011). While there is some evidence that psychological interventions such as motivational interviewing and problem solving may prevent depression after stroke (Hackett, Anderson, House, & Halteh, 2008), support for the efficacy of interventions for established depression is highly limited (Hackett, Anderson, House, & Xia, 2009).

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Using CBT to treat depression after stroke was first described in a single-case study (Hatcher, Durham, & Richey, 1985) as part of a successful multimodal, multidisciplinary approach. Other case studies and case series have supported its use since (Hibbard, Grober, Stein, & Gordon, 1992; Lincoln, Flannaghan, Sutcliffe, & Rother 1997; Rasquin, van de Sande, Praamstra, & van Heugten, 2009), but the only RCT of CBT to date was not supportive. Lincoln and Flannaghan (2003) compared CBT ( $n = 39$ ) with an attention placebo ( $n = 43$ ) and standard care ( $n = 41$ ) in people with stroke who scored  $> 10$  on the Beck Depression Inventory (BDI; Beck, Steer, & Brown, 1996) or  $> 18$  on the Wakefield Depression Inventory (WDI; Snaith, Ahmed, Mehta, & Hamilton, 1971). The CBT was offered for up to 10 sessions. There was no mood outcome difference between the groups. Numerous explanations have been put forward to explain why the intervention was not successful, the authors of the report themselves citing the brevity of the CBT relative to other studies, therapist training, sample size, recruitment strategy, and selection criteria. A further reason for the failure may be identified in the revelation, via post hoc analysis, that those who benefited least had poorer communication skills (Thomas & Lincoln, 2006). This finding supports the view that treatment of depression after stroke demands a modified approach. Lincoln and Flannaghan (2003) did not describe any modification of the CBT provided to cater for this difficulty, or indeed for cognitive deficits. Clinical experience is that substantial individual tailoring is

required for intervention in patients with stroke because of the added dimension of cognitive and communication disability (e.g., Kneebone & Jeffries, 2013), tailoring this paper will seek to guide.

The results of a recent trial of behavioral therapy (behavioral activation), the Communication and Low Mood (CALM) study (Thomas, Walker, Macniven, Haworth, & Lincoln, 2013), was the first work beyond case study data to show an effect for the psychological treatment of depression after stroke. Impressively, this was with the most challenging of participants, those with aphasia. In this RCT, the therapy was modified by taking into consideration the communication deficits of those being treated, for instance by using pictures and symbols to support treatment (see Figure 1). This trial supports the need for modified CBT approaches for those with stroke.

While there is evidence for the effectiveness of CBT in treating anxiety in other neurological conditions (Armento et al., 2012; Waldron et al., 2012), research into its use after stroke is in its infancy. The literature in this area is sparser even than that on the treatment for depression after stroke. A recent systematic review found no evidence to support any psychological treatment (Campbell Burton et al., 2011). Nonetheless, case studies have described effective CBT for anxiety after stroke where treatment has included cognitive rehabilitation strategies for an individual with mild cognitive impairment and communication supports for a client with communication disorder (Kneebone & Jeffries, 2013). Behavioral therapy in the form of relaxation training has also shown potential, including in a small RCT



**Figure 1.** Graduated behavioral activation for a client with aphasia: Gardening.

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