

## 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 & Egido, 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.

(Golding, Kneebone, & Fife-Schaw, in press; Kneebone, Walker-Samuel, Swanston, & Otto, 2014).

More than 20 years ago, Hibbard, Grober, Gordon, and Aletta (1990) proposed some guidance to support CBT in those affected by stroke, although their concern was principally with depression and little attention was given to the needs of those with aphasia. Absent too was guidance as to how cognitive disputation might be altered. There have also been new developments in CBT with older adults, which Hibbard et al. (1990) were unable to appreciate. While a number of authors have urged that modified CBT after stroke should include attention to cognitive deficits (e.g., Broomfield et al., 2010), once again they have restricted themselves to depression, and have failed too to appreciate the important role carers might play in the amelioration of maladaptive emotional responses. The literature on the use of CBT and behavior therapy with those with dementia (e.g., Kraus et al., 2008; Teri, Logsdon, Uomoto, & McCurry, 1997) has also not been integrated into recommendations with respect to CBT after stroke. While James (2010) does acknowledge a number of modifications are required, again little attention is given to the levels of intervention with respect to cognitive disputation.

The aim of this paper is to provide a guiding framework with which to integrate all of the literature relevant to the treatment of emotional disorders after stroke.

**A Framework for CBT After Stroke**

Figure 2 provides a visual representation of a framework to guide CBT for emotional disorders after stroke. It displays the five main considerations proposed with respect to patient level of cognitive and communication impairment: behavioral versus CBT approaches; the

degree of abstraction in disputation; the use of modified "boosted" CBT; the use of cognitive rehabilitation approaches; and the involvement of carers. These are considered below with case examples derived from clinical experience (unless otherwise referenced).

**Behavior Therapy Versus CBT**

As cognitive and communication disability become more prominent, the framework to support CBT of emotional disorders after stroke suggests treatment becomes more behavioral. This recommendation appreciates that approaches such as cognitive disputation are understandably compromised in those with more severely limited cognition (e.g., attention, memory, executive skill) and in those with communication impairment. As deficits increase, therapy is likely to concentrate on elements such as behavioral activation, in the context of depression, or relaxation training, in the context of anxiety disorders. Evidence to support the use of these interventions comes from the CALM trial, which demonstrated an effect on depression of behavioral activation in those with aphasia after stroke (Thomas et al., 2013), and studies that support the potential of relaxation training to reduce anxiety after stroke (Golding et al., (in press); Kneebone et al., 2014). It should be said the framework does not preclude these well-proven (in nonstroke populations) treatments being provided to those without cognitive/communication impairment after stroke; rather, it appreciates that these forms of treatment will predominate as impairment increases and that for some it will be the only practicable intervention after stroke.

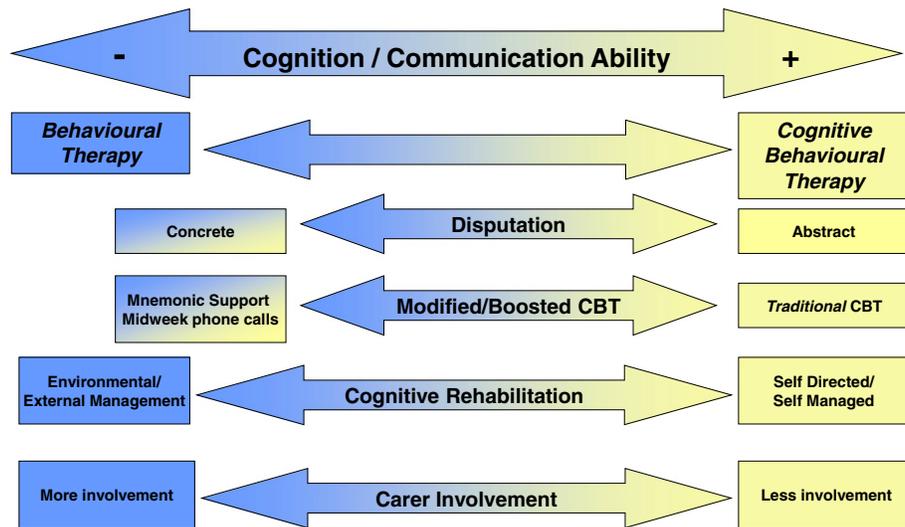


Figure 2. Framework for CBT after stroke.



**Figure 3.** Pictorial behavioral activation plan for Doris.

### Case Study 1<sup>1</sup>

Doris, a 74-year-old retired librarian, encountered a major left hemisphere stroke, on account of which she exhibited frank expressive aphasia. She had no speech at all. Six weeks on from her stroke, Doris needed a wheelchair to travel any distance, though she could walk a few steps to the bathroom. Her right arm and hand were affected; she had only limited fine-motor movement in her fingers. Doris was gradually improving physically on an in-patient post-acute ward. Despite her improvement, however, staff noticed that she avoided other patients, frequently withdrew to her room, and was often upset and tearful, mostly in response to efforts to communicate with her. She often refused to eat at all in the middle of the day and was regularly found to be "blankly" staring at the TV in her room when not attending therapy. Doris scored 4 (within the depressed range) on the Depression Intensity Scale Circles (DISCS), an instrument validated in a neuro-rehabilitation sample with cognitive and communication disability, including those with stroke (Turner-Stokes, Kalmus, Hirani, & Clegg, 2005).

<sup>1</sup>While rooted in clinical experience, except where indicated otherwise, case examples and names do not refer to any particular individual(s).

Doris had no history of emotional problems, but her previous occupation had centered on words and communication and it was likely that her reduced communication ability, and the resultant reduced social interaction, had precipitated and was maintaining her depression.

Doris was seen twice a week for 4 weeks for about 40 minutes on each occasion. Her first session was attended by her daughter and a speech pathologist, the following two by an occupational therapist. At Doris's initial session, the speech pathologist used drawing, picture cards and a tablet computer to support communication about previously enjoyed activities, about which Doris's daughter provided information. It was established that Doris had been a keen chess player and had enjoyed crocheting. At the following session a daily behavioral activation program that featured these enjoyments was mapped out with the psychologist and occupational therapist. As can be seen in Figure 3, also included on the program was Doris's regular evening visit from her daughter, granddaughter, and son-in-law. A jig to support Doris's use of her right hand was constructed to allow her to try crocheting. Interestingly, Doris's performance at chess was unimpaired post-stroke, although her reduced ability with her dominant hand meant she crocheted less well than she had in the past.

Over the course of 2 weeks, with daily supported timetabling of pleasant events, Doris became more interactive and more prepared to write single words, using her nondominant hand to support her communication. She also resumed eating her lunchtime meal.

On repeat measurements, Doris's DISC score ranged between 0 and 1, a range not considered indicative of depression.

### Disputation Abstraction

While the level of cognitive and/or communication deficit after stroke may preclude any direct attention to attitudes, beliefs, or appraisals in those with emotional disorder, those who are not affected might receive CBT with attention to these matters in the same way as someone without stroke. Between these two extremes, disputation may need to be more concrete than would traditionally be the case.

For instance, Beck (1979) provides a list of systematic errors in the thinking of people with depression. One of these is dichotomous, or black-and-white, thinking. With respect to someone who has had a stroke, low mood may result from the thought, "The stroke has changed me. I'm no good at all now." Ideally, the CBT therapist would use careful questioning, "guided discovery", to dispute such a thought and elicit more adaptive alternatives, for example, to bring about the response, "Hold on, I've got some disabilities, but I'm still a caring wife and mother." The therapist may also attempt to have the individual recognize her black-and-white, all-or-nothing thinking so she could see it in other situations in which it was apparent.

Flexibility, the ability to apply learning from one situation to another, might well be compromised in an individual post-stroke as a consequence of cognitive change, meaning that while the first dispute might be possible, generalization to other situations might not. This, of course, does not negate the power of disputation with respect to the specific circumstances at hand.

In addition, the style of therapy might need to be more direct than the guided discovery approach. If a patient was unable, on account of cognitive/communication deficits, to conclude herself that she was still able to contribute, to dispute the "no good" thought the therapist might need to be more directive. For instance, the therapist might specifically ask, "Are you not still a wife and a mother?" Indeed, the development of coping self-statements provided by the therapist and practiced/referred to when less adaptive cognitions occur, in the style of stress inoculation therapy (Meichenbaum, 1985), may be the limit of some patients' capacity with respect to cognitive intervention.

#### Case Study 2

Chris, a retired construction worker, was 77 years of age when he suffered a haemorrhagic stroke. His first

psychological review was 8 weeks after this event when he was an inpatient in a post-acute stroke unit. At this time he required a quad stick to walk and fatigued very rapidly. Cognitive assessment identified that he had reduced concentration, poor short-term memory, and subtle executive changes relative to his age peers. Nursing staff referred him for therapy because he seemed depressed; he often stated, "There's no point going on", appeared flat and disinterested, and was "bored." He complained about his lack of visitors. Unfortunately, his wife did not drive and transport links between his home and the hospital were poor, so her visits were infrequent.

Chris's treating physician had commenced him on antidepressants 3 weeks prior to the therapist's review. Assessment by the CBT therapist confirmed significant depression and identified suicidal ideas with limited planning and no action. Questioning about there being "no point" and some brief thought records, such as "There's no future," "I'm getting nowhere," "It shouldn't be this way," and "I'm no good now," established that Chris felt hopeless. The working formulation hypothesized that Chris's depression had arisen in context of his stroke, bringing as it did disability and hospitalization (away from his wife). Maintaining factors were considered to be inactivity, negative thinking, and a lack of social (family) support.

Chris was seen for CBT weekly for 7 weeks during his admission. Sessions were brief, 30 minutes maximum, on account of his fatigue and reduced concentration. Intervention included developing an activity program with an occupational therapist, visits from the hospital chaplain and a focus on whether there were other ways Chris could consider his situation, labelled as "choosing to do it hard or soft." The evidence for things being "hopeless," his being "useless," and the rationality of demanding "fairness" were also addressed with Chris. Consistent with the more concrete approach indicated on account of Chris's cognitive change, the question was not, "Why do things have to be the way you want them to be?" but rather, "Why did you have a stroke?" and "Why shouldn't you have had a stroke?" It was not considered, "Why do you have to be of use?" but, "What can you still do?" Further, the focus was not on "Why do you have to have hope?" but rather "a realistic view of the future." Chris was discharged with a Brief Assessment Schedule Depression Cards (BASDEC; Adshead, Cody, & Pitt, 1992) score of 6 (nonclinical range), down from 18 (clinical range) at his initial assessment.

### Modified/ Boosted CBT

Modified or "boosted" CBT borrows heavily from the literature and research on CBT with older people. Simply put, it considers a range of strategies to support the

retention of the concepts of CBT and their application. These strategies range from ensuring disputes of irrational ideas are written down and having a client routinely do this within the session, to recording sessions so that key messages can be reinforced and rehearsed (Lincoln et al., 2012). Dispute records from within sessions are used between contacts. Mnemonics are also used to support key principles (e.g., Stanley, Diefenbach, & Hopko, 2004).

Of course, many of these strategies might be exploited in regular CBT, but it is particularly important they be deployed during CBT with those with altered cognition/communication after stroke. CBT enhanced with learning and memory aids (weekly reading exercises, reminders and troubleshooting/homework compliance calls) has been demonstrated to evidence greater effect sizes and improvements on more measures than standard CBT in the treatment of generalized anxiety disorder in older people (Mohlman et al., 2003). Similar enhancements have been employed with those who have acquired brain injury (Arundine et al., 2012).

#### *Case Study 3*

Jack was a 47-year-old divorced mechanic who suffered a dissected carotid stroke, a relatively rare event that usually affects younger people. Jack made a very good recovery, considering the severity of his event, and was able to return to work and to driving, despite mild memory problems. Unfortunately, 8 months after his stroke he developed significant social anxiety in the context of dysarthria, a motor problem that affected the quality of his speech. He was seeing a speech pathologist to assist with this but while it remained he was concerned others would think he had been drinking and that he would not be able to develop a new intimate relationship because of it. Jack found it difficult to get to sleep because of his worrying and frequently woke in the middle of the night full of the same concerns. He stopped going out socially on account of his problem and developed low mood. Jack's speech pathologist recommended he see a psychologist to assist his recovery.

Jack found a number of supports useful. He kept a card of reassuring messages prepared with his CBT therapist: "When you next find yourself upset about your dysarthria, take out the card we have prepared together with the reassurance on it"; "Yes, it's tough having had the stroke and the dysarthria, and the rehab is hard work, but things are getting better." Jack found a mnemonic often used with older people was useful to support better sleep: SLEEP; S – Select a regular bedtime and wake time, L – Limit the use of the bedroom, E - Exit the bedroom if you are not asleep in 10 to 15 minutes, E - Eliminate naps, P – Put your feet on the floor at the same time in the morning (Stanley et al., 2004). Further, he utilized the 3 Cs—"Catch it, Check it, Change it" (Granholm, McQuaid, Auslander, & McClure,

2004)—to deal with negative thoughts when they arose. He also utilized regular relaxation practice, to the benefit of his anxiety and also, according to his speech pathologist, his dysarthria. Jack did well with the therapy, 7 sessions of between 45 minutes and an hour in length, achieving a reduction on the Hospital Anxiety and Depression Scale, Depression subscale (HADS-D; Zigmond & Snaith, 1983) of 10 points, from 15 (clinical range) to 5 (nonclinical range).

#### **Cognitive Rehabilitation**

Cognitive deficits likely play a role in the development and maintenance of emotional problems after stroke (Kutlubaev & Hackett, 2014; Menlove et al., in press). Cognitive rehabilitation, therefore, as an addition to CBT after stroke, will often prove to be an essential component of intervention. The purpose of cognitive rehabilitation is to use restitution interventions and develop individualized compensatory strategies for problems with memory, attention, visuo-spatial skills and executive function. A number of standard techniques for cognitive rehabilitation have been described (American Congress of Rehabilitation Medicine, 2012), though often the strategies determined are based on problem solving with respect to a particular presentation.

As with other dimensions proposed within the post-stroke CBT framework, the integration of cognitive rehabilitation is on a continuum, although this is not simply from more to less. Those without cognitive impairment will not require this component at all, but for those who do, the continuum ranges from self-directed strategies by those who are less impaired, to strategies exploiting external aids/prompts for individuals for whom the severity of their deficit precludes self-direction. For some individuals the specialist assessment and intervention skills of a clinical neuropsychologist or specialist occupational therapist might be indicated, but for many the ability of the CBT therapist to problem solve around apparent deficits might be all that's required.

The author recalls one patient who had become depressed because "No one's visiting"—meaning, for her, "No one cares." She had memory problems in the context of her stroke. Simply providing a visitors book to which nursing staff could refer when the concern was expressed was all that was required to ameliorate the depression; she had simply been forgetting she'd had visitors!

#### *Case Study 4*

Ned's case is an example of combining CBT with cognitive rehabilitation to reduce anxiety, described in detail elsewhere (Kneebone & Jeffries, 2013). Essentially, Ned had developed mild executive problems as a consequence of his stroke, which had contributed to anxiety emerging 7 months after the event, principally in the

context of his return to work as company director and despite an optimal physical recovery.

Ned attended an outpatient clinic. When first seen he described waking with extremely high anxiety. At work, while his reduced cognitive ability affected his performance, the anxiety it contributed to reduced it even further. For instance, Ned would try to work on the computer, encounter a difficulty, and become swamped with anxiety-provoking thoughts about his inability, and his future. His anxiety interfered with his being able to problem solve. Ned also found it more difficult to concentrate on phone conversations. Again, anxiety was a further contributor to this, over and above cognitive change. It appeared Ned's anxiety had developed as a consequence of the cognitive change he'd experienced as a result of his stroke. It was maintained by these changes, affecting his performance at work and his negative appraisal of his performance.

Intervention with Ned included relaxation training, cognitive disputation, and, importantly, cognitive rehabilitation. For example, a compensatory strategy was devised collaboratively by Ned and his therapist to manage his phone performance. Ned would ask the caller to "just hang on a minute," then take a little time to compose himself with the assistance of a brief relaxation procedure. During the call Ned would also use active listening strategies, including paraphrasing, to assist his retention and understanding of the material presented and to slow the pace of the communication. Over 7 sessions Ned's score on the Anxiety subscale of the Hospital Anxiety and Depression Scale (Zigmond & Snaith, 1983) went from 12 (clinical range) to 4 (nonclinical range) at the conclusion of treatment, and to 0 (nil anxiety) at 2 and 3 month follow-ups.

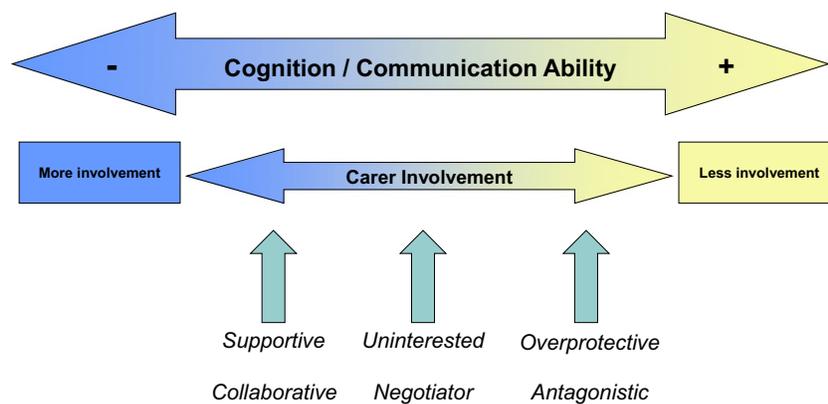
**Carer Involvement**

The requirement of formal or informal carers to be involved in BT and CBT treatment of emotional problems after stroke varies in line with cognitive and communication

disability. As those with stroke have greater impairment, in general terms, this involvement is more likely to be required if intervention is to prove successful. When carers can be involved, their involvement ranges from supporting the therapist's understanding of premorbid function in order to identify previously enjoyed activities, to support for activity scheduling and providing physical assistance to access pleasant events. The role of carers in such interventions is established in the behavioral treatment of those with dementia (e.g., Teri, Logsdon, Wagner, & Uomoto, 1994), but with appreciation of cognitive impairment, it can also include prompts to support the use of coping self-statements and the regular practice of relaxation (Kraus et al., 2008).

Carer involvement is not as simple as it seems, however. Relationship dynamics and attitudes to therapy, particularly within the context of the disruption to roles and expectations of the future that can come with a stroke, need to be appreciated when carer involvement is considered. Carer stress and burden can be considerable in the context of stroke (e.g., Draper & Brocklehurst, 2007; McCullagh, Brigstocke, Donaldson, & Kalra, 2005) and there is a reciprocal relationship between depression in the person with stroke and the carer's mood state (Carnwath & Johnson, 1987). Making additional demands of a carer may be contraindicated in the case of significant carer stress.

A number of carer types have been loosely described with respect to involving them in psychological therapy for someone with stroke (Dempster, Knapp, & House, 1998). The "absent caregiver" is either physically or emotionally unavailable (for instance, due to carer stress) and likely cannot be included. Figure 4 depicts the degree to which other carer types might be involved with respect to cognitive and communication disability. Generally supportive carers are divided into three main types: (a) the *supportive* carer who generally leaves the patient to it; (b) the *collaborative* carer who's actively involved; and (c) the *overprotective* carer who is supportive but risk-avoidant. The first two offer potential for involvement, the latter



**Figure 4.** Carer involvement in CBT after stroke.

much less so. Generally unsupportive carers are divided into subcategories: (a) the *uninterested* carer; (b) the *critical negotiator*, who will generate some good ideas but may be negative; and (c) the *antagonistic* carer. The first two of these subtypes offer modest potential for involvement, but involving the latter might potentially undermine intervention.

There is currently no specific guidance as to how one engages carers in CBT treatment after stroke when they are less inclined to be involved. However, the assessment of carers has long been considered an important aspect of general rehabilitation after stroke (e.g., [National Institute for Health and Care Excellence, 2013](#)). If this has not occurred when CBT is initiated it should be arranged as soon as practicable. Assessment can head off potential sources of stress for carers by identifying how everyday living concerns such as personal care, transport, and home adaptation can be handled, as well as identifying sources of financial and psychosocial support that are available. With respect to the latter, given the levels of stress encountered by many carers in the context of stroke ([Lincoln et al., 2012](#)), some may even need psychotherapeutic intervention in their own right. Attention to these needs may potentially make carers more disposed to involvement in CBT.

Clinical experience also suggests that psychoeducation with respect to the patient's emotional difficulties may be as important for engaging a carer as it is for a patient. This can include providing information on the potential effect of the difficulties on rehabilitation and the implications of this for the carer. A decisional balance ([Janis & Mann, 1977](#)) considering the pros and cons of participation can be useful in such situations. Where appropriate this can be extended to the use of motivational interviewing techniques ([Miller & Rollnick, 2012](#)) where a practitioner has this additional skill. Once carers are engaged, education as to reasonable expectations with respect to the person with stroke is important; inappropriately low expectations of the stroke survivor can reduce achievement, unduly high expectations can expose them to risk.

#### Case Study 5

Anthony was a 78-year-old retired bricklayer. He suffered right hemiplegia, following a left-hemisphere stroke. He walked with a quad stick, but was independent in all activities of daily living such as washing and dressing. He had moderate memory problems. Anthony had become depressed and had frequent morbid thoughts of "not going on" and there being "no point to living now" as his recovery plateaued. His family doctor referred him for outpatient therapy after a 6-month follow-up review for his stroke. On the Patient Health Questionnaire (PHQ-9; [Spitzer, Kroenke, & Williams, 1999](#)) he'd scored a 12, within the depressed range.

Anthony had been married to Mary for 50 years. The majority of their time together she had been a homemaker. Anthony had become dependent on his wife in the context of his memory problems and would not come to therapy unless Mary attended his sessions.

Over two assessment sessions of approximately 45 minutes each, it was established that Anthony had fallen away from many activities in which he could still participate, such as outings to his social club and going to the movies, and was spending most of his time in bed because he was "ill." It was considered this deactivation was a major contributor to Anthony's mood disorder. Unfortunately, it was evident at the outset that Mary couldn't be convinced psychological therapy would be useful. Despite the therapist's best attempts to explain the potential impact of the depression on her husband's recovery from his stroke and of the mechanisms of CBT that might assist, she felt, "You just get on with it, don't you." Reflecting her attitude, Mary noted at the second session, "Psychologists aren't real doctors, are they?" At the beginning of session three she announced, "Anthony says he doesn't think there's any point in coming any more," although Anthony looked perplexed and claimed he did not recall saying this. The couple did not re-attend. Mary provides an example of an *antagonistic* caregiver.

#### Case Study 6

Beatrice was referred by nurses from a day therapy center she was attending, principally to address her mobility needs. She was 82 years old when she suffered a major stroke. As a consequence she walked with a rollator frame and required substantial assistance from her husband and carers to dress and shower. Cognitive testing established substantial executive and memory problems. Beatrice described, and her husband agreed, that she felt "... always on edge." Her anxiety was particularly expressed in a concern about having a toileting accident. She would frequently want to go to the toilet as soon as she'd been and often sat in only her nightdress, ready "just in case," with a urine pan nearby. Beatrice also "constantly" questioned her husband about when her appointments were going to be because she didn't want to miss any and because she'd forget what she'd been told. On the Geriatric Anxiety Inventory (GAI; [Pachana et al., 2007](#)) Beatrice scored 18, within the clinically significant range.

Assessment established that while Beatrice had always been fastidious, her anxiety had only developed post-stroke. Likely contributors appeared to be her memory problems and some toileting accidents that she'd found extremely embarrassing early on after her stroke and her reduced mobility. Beatrice's concern about toileting combined with her memory problems to create a problem behavior; she'd forget when she'd last been to the toilet and was concerned

that “If I don’t go I’ll end up wet.” Similarly, Beatrice would forget when her appointments were: “I don’t want to miss any appointments. That would be extremely rude.”

Robert, Beatrice’s husband of 36 years, explained they’d met “later on in life.” He was a long-time yoga practitioner, psychology-minded, and more than happy to assist in Beatrice’s treatment. The couple attended 10 sessions, each of approximately 45 minutes duration. Following psychoeducation, this initially involved training in a brief relaxation response, three-part breathing (Winkler, James, Fatovich, & Underwood, 1982). Notably, Robert practiced this with Beatrice. The couple undertook to record when Beatrice passed urine, as well as when she felt she had to but there was no result. Following this, the time between “visits” was increased to reflect the span between “successful” events. In addition, Beatrice agreed to consider a hierarchy of time with progressively more clothing on. For both of these aspects of intervention she used relaxation and coping self-statements, such as, “It’s not time to go yet,” “I only need to go a couple of times each morning,” and “Relax,” to manage her concerns. A whiteboard was placed on the couple’s fridge with a list of Beatrice’s appointments and, if Robert went out, a note of where he was and when he would be back. If Beatrice asked about appointments she was prompted to check the board. The prompts from Robert were faded as Beatrice began to check herself. There were two advantages to this. It meant Robert did not have to deal with repeated questions, and it meant Beatrice would get up from her chair to check, potentially of physical benefit to her.

Over the course of the intervention Beatrice became notably more relaxed, started to wear day clothes, and her questioning about appointments became negligible. At the conclusion of contact her GAI score was 7 (nonclinical range). This case provides an example of both successful *collaborative* carer involvement and cognitive rehabilitation in addition to traditional CBT components to treat anxiety after stroke.

## Discussion

Emotional difficulties after stroke are common, distressing, and very likely to affect rehabilitation outcomes. Despite this, arguably the most proven of psychological therapies in the general population, CBT, has been investigated in this context only to a limited extent. Partly this can be explained by the lack of an overarching framework to inform practice, one which takes into account the disabilities common after stroke.

Supported by case study examples, this paper has proposed a framework for CBT after stroke that considers the relative merits of behavioral versus cognitive behavioral intervention; the depth of abstraction within cognitive therapy which might be considered in intervention; the need for specific augmentation to “boost” CBT; the

complementary provision of cognitive rehabilitation to support CBT; and the nature of and indicators for the involvement of carers.

The framework proposed to guide CBT after stroke provides the basis for a treatment manual that could allow individual tailoring with respect to disability, yet still be subject to RCT. Such trials might yet support the utility of CBT for people with emotional problems after stroke, not only with respect to emotional outcomes but, given their effects, to functional recovery as well.

Notwithstanding this, the heterogeneous nature of those with stroke, particularly with respect to cognitive and communication disability level, indicates that further case study reporting will likely continue to play an important role in informing clinical practice in this area. The carer typology proposed (Dempster et al., 1998) and techniques to engage carers optimally in CBT should also be subject to research.

The question as to when best to provide CBT after stroke remains unanswered and worthy of investigation. As is evident from the case studies presented here, however, there is potential for application in both inpatient and outpatient settings. Further, the use of CBT approaches to prevent emotional difficulties warrants exploration. As noted, problem-solving therapy has already proved promising in this regard (Hackett et al., 2008).

Over and above the research proposed is the importance of eliminating barriers to stroke survivors accessing CBT. These include those traditionally associated with disability, such as transport and physical accessibility of services, but also those linked to referral systems as well as therapist skill and confidence. With respect to pathways to care, family doctors and others may need education in how to recognize emotional maladjustment and the importance of doing so in this population (Department of Health, 2008). In particular, recognition may be an issue in patients who have more severe cognitive or communication problems, where knowledge of specialist screening instruments, such as the Stroke Aphasic Depression Questionnaire (SADQ; Sutcliffe & Lincoln, 1998) and the Behavioural Outcomes of Anxiety scale (BOA; Kneebone, Neffgen, & Pettyfer, 2012; Linley-Adams, Morris, & Kneebone, 2014), would be useful.

Clinical experience shows that unless therapists receive training with respect to stroke, only the most senior practitioners will attempt such therapy. To overcome this impediment, joint working and education with rehabilitation staff is recommended (e.g., Hyam, 2012).

The offering of CBT within a comprehensive approach to stroke service delivery (National Health Service Improvement, 2011) also needs to be considered. Other services such as support groups (Hull, Hartigan, & Kneebone, 2007) and befriending (Swinburn, McVicker, & Pearce-Willis, 2011) may be cost-effective first-line

interventions for those with milder levels of distress, although they too require research to establish efficacy in this population. Further, which services and when to offer them to carers of those with stroke is highly pertinent, given that their emotional health and that of stroke survivors appears inextricably linked (Camwath & Johnson, 1987).

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