

## **The Development of a Mindfulness Group for Stroke Patients: A Pilot Study**

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*A mindfulness group was run for stroke patients to explore its feasibility. Interviews and questionnaires enabled our understanding of the patients' experience to inform practitioners of the strengths, difficulties and adaptations to consider for such a group.*

With an estimated 152,000 strokes in the UK every year, stroke is a major cause of morbidity and mortality (The Stroke Association, 2013). As well as physical disability, patients frequently experience cognitive difficulties, such as attentional and memory deficits (Tatemichi et al, 1994), emotional difficulties, particularly anxiety, depression (Hackett, Yapa, Parag & Anderson, 2005) and post-stroke pain (Kim, 2009). Mindfulness has been defined as “the awareness that emerges through paying attention on purpose in the present moment, and non-judgementally to the unfolding of experience moment by moment” (Kabat-Zinn, 2003, p.145). It has been suggested that Mindfulness based approaches can be helpful in addressing some of the common problems which can be experienced by stroke survivors, such as: anxiety and depression (Hofmann, Sawyer, Witt & Oh, 2010); chronic pain (McCracken, Gauntlett-Gilbert & Vowles, 2007); and impairment of working memory and attention (Chambers, Lo & Allan, 2008).

The heterogeneous nature of stroke lends itself to the use of a range of psychological interventions, depending upon individuals' impairments, length of time since their stroke (Lincoln, Kneebone, Macniven & Morris, 2011) and their own psychological and social resources. The sudden and profound nature of stroke typically generates change, loss and adjustment issues. Mindfulness Based Cognitive Therapy (MBCT: Segal, Williams & Teasdale, 2002) seeks to address thoughts, emotions and bodily sensations in an observational, non-judgemental and compassionate

way. Bishop and colleagues (2004) propose a two component model of mindfulness, wherein one component focuses on the self-regulation of attention such that it is maintained on immediate experience. The second component was seen as involving the adoption of an attitude towards current experience characterized by curiosity, openness, and acceptance. The consideration of the use of mindfulness with stroke survivors alongside Cognitive Behavioural Therapy (CBT) springs some concerns about the efficacy of CBT with the stroke population (Broomfield et al, 2011). This pilot study aims to develop an understanding of stroke survivors' experience of an MBCT group and explore its feasibility and benefits.

## **Method**

### *Participants*

Four participants from a local stroke support group with cognitive and communication abilities which were judged by an experienced clinical neuropsychologist to be suitable for this intervention were selected. They consisted of 3 males and 1 female, aged 47 – 62 years, who were living at home and between 1 - 4 years post-stroke. Summary details for the four subjects are as follows; Subject 1 had experienced a right hemisphere, acute carotid artery ischaemic stroke some two years prior to the study. This individual reported weakness in the contralateral foot, leg & arm, reduced balance and reduced concentration and attention. Subject 2 had experienced a right hemisphere acute carotid artery ischemic stroke some three years prior to the study. This person also reported paralysis of the left arm, weakness and spasms of the left leg and foot and reduced concentration and attention. Subject 3 had suffered a right hemisphere ischaemic stroke approximately a year prior to the study, and subsequent facial sensory issues and heightened emotional lability. Lastly, subject 4 had experienced a left hemisphere ischemic stroke just over a year prior to the study, with resultant right sided weakness and dysphasia, reduced reading and writing abilities and disruption of memory and attentional abilities.

## *Measures*

Semi-structured interviews and the following questionnaires were administered both pre and post-group:

- WHO Quality of Life – Bref (WHO QoL-Bref; The WHOQOL Group, 1998). The WHOQOL-BREF assesses the following broad domains: physical health, psychological health, social relationships, and environment. Skevington, Lotfy, & O'Connell, (2004) have reported good to excellent psychometric properties of reliability for this measure.
- Five Facet Mindfulness Questionnaire (FFMQ; Baer et al, 2006). This instrument assesses observing, describing, acting with awareness, non-judging of inner experience, and non-reactivity to inner experience. The authors have provided evidence to support for construct validity of the FFMQ in the clinical setting.
- Hospital Anxiety and Depression Scale (HADS; Zigmond & Snaith, 1983) . The HADS measures symptom severity and caseness of anxiety disorders and depression. The HADS is widely used, and has been reported to have adequate factor structure, intercorrelation with other measures and internal consistency (Mykletun et al., 2001).
- Rating Scale for Attentional Problems (RSAP; Ponsford & Zinsella, 1991). This scale has been shown to have adequate validity as a clinical measure of attentional behaviour. The authors reported statistically significant correlations with other measures of attention, and high level of internal consistency, and excellent intra-rater reliability.

## *Group Structure*

The MBCT approach included: education regarding mindfulness attitudes; practising mindfulness formally and informally; reflecting on the practice; broadly addressing participants' cognitive and emotional issues including adjustment, loss and coping (For more details, see: Segal, Williams, & Teasdale, 2002). To improve its accessibility the following adaptations were made:

- Mindful movement exercises allowed participants to remain seated and focus on the upper body only
- Hand-outs were provided with an audio version on a C.D. This summarised the session content, homework and included a 'reflections' page where participants could record their experience of mindfulness at home
- Stickers were provided to put on an object to help participants remember to complete that activity mindfully e.g. Putting it on the toothbrush for brushing teeth mindfully.

## **Results**

Psychometric assessment was undertaken prior to and following on from the Mindfulness Group. Three participants improved on the HADS for anxiety and depression as well as the psychological domain of the WHO QoL-Bref. Interestingly, the one participant who did not improve on these measures also reported doing the least amount of practice at home, indicating a possible relationship. However, this study was not designed to test effectiveness, and so further research would need to explore this. Additionally, all of the participant's attentional scores improved on the Rating Scale for Attentional Problems, with the participant who had the poorest attentional score initially, making the greatest improvement. Considering that Mindfulness has been theoretically linked to attention (Chambers, Lo & Allan, 2008) these findings suggest that further exploration into stroke survivors' use of Mindfulness for attentional difficulties could be undertaken. Table 1 provides pre- and post- course assessment scores for the four participants.

Table 1

Assessment	Assessment point	Participant				Average scores
		1	2	3	4	
<b>Quality of Life*</b>	pre	81	91	101	78	87.75
	post	77	87	106	78	87
<b>Mindfulness**</b>	pre	122	137	120	132	127.75
	post	133	145	137	130	136.25
<b>Anxiety***</b>	pre	15	6	6	8	8.75
	post	8	7	5	4	6
<b>Depression***</b>	pre	10	7	5	8	7.5
	post	10	8	1	6	6.25
<b>Attention****</b>	pre	44	63	22	51	45
	post	38	40	20	38	34

\* WHO QoL-Bref; A higher score = higher QoL

\*\* FFMQ; A higher score = more Mindfulness skills

\*\*\* HADS; A lower score = less anxiety & depression

\*\*\*\* RSAP; A lower score = higher levels of attention

## The Participants' Experience

### *Group Materials*

All participants reported that the ease of revisiting content, through the audio and visual hand-outs, enhanced their understanding and memory of the sessions and highly recommended these materials for future groups. However, the participants expressed difficulties with the written tasks, such as the 'pleasant events diary' where a preference was given to recording the information verbally or discussing it within the group.

### *Mindfulness Practices*

The participants reported that they particularly engaged with the sitting meditation, breathing space and the lake and mountain meditation. Three of the participants said they felt that the longer meditations were difficult due to attentional difficulties or fatigue, and one participant reported that

he felt that this had reduced motivation to practice at home, thus raising a question about whether shorter meditations may improve participants' engagement with practicing. Despite this, the mean score on the FFMQ improved from pre group (126) to post group (137) suggesting that participants positively engaged with the MBCT group and improved their mindfulness skills.

### *The Body Scan*

The Body Scan was challenging for participants with hemiplegic arms, predominately because it focuses on both arms simultaneously and the participants experience hugely variable sensations between each arm. Adapting the body scan to focus on individual arms might improve its accessibility for a stroke population.

### *Mindful Movement*

Developing the skills to respond to physical sensations mindfully is seen as important in mindful teaching (Kabat-Zinn, 2004), and therefore mindful movement, walking and sitting meditation (requiring the individual to sit away from the back of the chair) involve physical movement. In this study, mindful movement was adapted to allow participants to do the practice seated and focus on their upper body only. This exercise aims to evoke physical sensations through holding positions. The participants are then guided to focus on these sensations mindfully by directly feeling what is there, in an endeavour to foster development of awareness rather than automatically reacting. Participants were introduced to this practice as an opportunity to explore bodily sensations that arise. They were reminded to only undertake movements that they were capable of and to remain safe. This exercise resulted in the participants focusing on their physical accomplishments, and so proposed a dilemma for the participants because, although they wanted to follow the instructions, their desire to physically push themselves was stronger, perhaps a reflection of the predominately physical and goal orientated rehabilitation they received post-stroke. Correspondingly, this practice also resulted in feelings of 'loss' amongst the group as the practice highlighted their change in functioning. In discussion, all the participants said they felt the feelings of 'loss' that arose allowed them to share experiences and explore ways of coping with negative feelings.

### *Mindfulness Attitudes*

The mindfulness attitudes were introduced in week 1 and re-visited throughout the course. It was observed that the mindful attitudes 'Acceptance' and 'Non-striving' provoked heightened emotions amongst the participants. Additionally the participants appeared to be somewhat sensitive and resistant to the notions of 'acceptance' and 'non-striving' as they recalled how their motivation to progress during their rehabilitation had been largely linked to not accepting their abilities and striving to improve them; *"if we didn't try we would never have got any better"*.

### *Group Experience*

All of the participants said they felt that attending the group was a positive experience as it provided an opportunity to share experiences with other stroke survivors. However, the participants reported that they felt the group could have been improved by including partners. This could have benefitted their partners personally, whilst also providing support to maintain mindfulness practice at home.

## **Conclusion**

The current pilot study supports the view that stroke survivors can benefit from group interventions (Vohora & Ogi, 2008). More specifically, it offers evidence for the feasibility of group MBCT with a stroke population. This pilot study indicated how adaptations to mindfulness exercises and materials are necessary e.g. changes to The Body Scan, auditory hand-outs and modifying exercise duration. Participants' experiences also indicated the need to modify the 'pace' of the intervention. The group enabled a forum for shared experiences of mindfulness practice, exploring mindfulness attitudes and addressing key themes relevant to stroke e.g. loss, comparison with pre-stroke expectations and striving. Future investigations might focus on how key issues for this population, including acceptance, non-striving and compassion, are framed in a group intervention and how issues such as stage of recovery/time elapsed since stroke and experience of rehabilitation impact upon this. The question of the relationship between mindfulness practice and attentional improvement is also raised by the participants' self-ratings and worthy of further study. The

inclusion of partners or carers of stroke survivors could directly address their own vulnerability to psychological distress and depression (Hirst, 2005) and support maintenance of mindfulness practice at home or sustaining practice post group.

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