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**Using Acceptance and Commitment Therapy (ACT) to improve outcomes
in functional movement disorders: A case study.**

Christopher D. Graham*^{1,2}, Simon R. Stuart³, Daniel J. O'Hara², Steven Kemp²

¹Leeds Institute of Health Sciences, University of Leeds, Leeds, UK, LS2 9LJ.

²Department of Clinical Neuropsychology, Leeds Teaching Hospitals NHS Trust, St. James
University Hospital, Leeds, UK, LS9 7TF.

³Psychological Therapies, NHS Lanarkshire, 40 Chapel Street, Carluke, ML8 4BA.

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*Requests for reprints should be addressed to Dr Christopher D. Graham, Leeds Institute of Health Sciences, University of Leeds, Leeds, UK, LS2 9LJ. E-mail: c.d.graham@leeds.ac.uk

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Author Biographies

Christopher D. Graham is a clinical psychologist and research fellow in behavioural medicine at the University of Leeds, UK. He maintains a NHS functional neurological disorders clinic. He researches the mechanisms and treatment of functional neurological disorders, and ACT/clinical RFT within the context of chronic disease.

Simon R. Stuart is a clinical psychologist with NHS Lanarkshire, Scotland. As part of his routine practice in adult mental health, he works with people experiencing functional neurological disorders. He has clinical and research interests in the applicability of process-focused, ACT/RFT approaches both in health settings and in wider social contexts.

Daniel J. O'Hara is a clinical psychologist based at St James's University Hospital, Leeds with primary clinical and research interests in brain tumours and the neuropsychological impact of neurosurgery. He also has extensive experience of working with people presenting with functional neurological disorders.

Steven Kemp is a consultant clinical neuropsychologist at St James's University Hospital, Leeds and visiting lecturer at the University of Leeds. His clinical and research interests cover the neuropsychology of epilepsy, memory, traumatic brain injury and functional neurological disorders.

Abstract

Although there are many theories of Functional Movement Disorders (FMD), the causes and prognosis remain unclear, and there are no treatments with high-quality empirical support. Acceptance and Commitment Therapy (ACT) is an acceptance-based behaviour therapy which, via altering a process called psychological flexibility, aims to support behaviours that are consistent with a person's overarching values – even in difficult, uncertain or immutable contexts. It may therefore have pragmatic benefits in the context of FMD. We outline the theoretical basis for ACT and detail a case study of a brief (6 session) intervention for increasing personally meaningful activity with FMD. The participant was in her early twenties and had been diagnosed with functional propriospinal myoclonus. ACT techniques including relational framing, defusion and mindfulness exercises were used to increase psychological flexibility, with the goal of enabling effective functioning within the difficult context created by FMD. Following treatment, the participant showed a reliable change/clinical recovery in psychological flexibility (AAQ-II), FMD symptom interference (WSAS; primary outcome) and mood (CORE-10; secondary outcome). This case study demonstrates an approach that focuses first on improving functioning with FMD, as opposed to eliminating or controlling symptoms.

Keywords: acceptance and commitment therapy; cognitive behavioural therapy; relational frame theory; mindfulness; functional neurological disorders; functional movement disorders; functional propriospinal myoclonus; neurology; medically unexplained symptoms; conversion disorders.

Using Acceptance and Commitment Therapy (ACT) to improve outcomes in Functional Movement Disorders: A case study.

1 Theoretical and Research Basis for Treatment

People with functional neurological disorders experience neurological symptoms, such as seizures, limb weakness, and visual disturbance, which are inconsistent with known disease pathologies but are not feigned (van der Hoeven et al., 2015). Functional movement disorders (FMD) are a subset of functional neurological disorders that involve motor symptoms, such as tremor, dystonia, and limb weakness. FMD are not diagnosed on exclusion alone but also on the presence of positive signs, such as tremor entrainment or Hoover's sign (Stone, 2009). They are common presentations to neurology services, accounting for between 5% and 10% of movement disorder referrals (Stone, 2009), and are more common in women and younger adults (Ellenstein, Kranick, & Hallett, 2011). Outcome is often poor, with approximately 40% experiencing symptoms five years post-diagnosis (Gelauff, Stone, Edwards, & Carson, 2014). FMD often cause high levels of functional impairment; consequently, quality of life and mood are often affected (Vroegop, Dijkgraaf, & Vermeulen, 2013) and associated healthcare costs can be high (Gallagher et al., 2013).

Understanding and treating FMD

FMD have been termed 'the crisis for neurology' (Hallett, 2006). It is easy to see why: there is much debate over aetiology (Edwards, Stone, & Lang, 2014; Wilshire & Ward, 2016); there are no treatments with proven efficacy (Ricciardi & Edwards, 2014); and health professionals often feel ill-equipped to manage FMD (Yon, Nettleton, Walters, Lamahewa, & Buszewicz, 2015).

The language used to describe such conditions requires careful consideration. The term ‘psychogenic movement disorders’ is used by some clinicians. However, many others find this problematic as it can lead to dualistic assumptions that symptoms are ‘of the mind’ as opposed to being ‘real’; that FMD indicate the presence of mental ill health; and that symptoms are under the patient’s volition. These assumptions may be in contrast to patients’ experiences and the apparent heterogeneity in presentation (Edwards et al., 2014; Wilshire & Ward, 2016). Therefore, the more descriptive term FMD may be preferable (Ding & Kanaan, 2016).

There are many theoretical explanations for functional neurological disorders. In the 19th century, Jean-Martin Charcot proposed that ‘hysteria’ emerged from ‘functional lesions’ to the nervous system (Bogousslavsky, 2011; Ellenstein et al., 2011). This was followed by psychodynamic ‘conversion’ explanations, which are often ascribed to Freud (Spitzer, Spelsberg, Grabe, Mundt, & Freyberger, 1999). Wilshire & Ward (2016) summarise these prominent early theories as follows: FMD result from the suppression of trauma or emotion-laden ‘conflicts’, creating subconscious psychological tension which is converted into bodily symptoms. Symptoms may then be reinforced by secondary gains, e.g. attention from others. There is empirical evidence supporting aspects of these theories (Blakemore, Sinanaj, Galli, Aybek, & Vuilleumier, 2016; Spitzer et al., 1999). However, a proportion of people with FMD report neither antecedent trauma (Stone & Edwards, 2011), nor problems indicative of ‘conflict’ (van der Hoeven et al., 2015). Further, it is hard to establish whether distress is a cause or consequence of FMD. Such conversion explanations therefore appear to have limited application across all FMD presentations.

Cognitive behavioural models of medically unexplained symptoms have broadened the number of theoretically implicated processes (Deary, Chalder, & Sharpe, 2007). Arguably the unique prediction amongst these is that maladaptive or distorted illness beliefs (e.g. that

something is catastrophically physically wrong) inform aberrant illness behaviours (e.g. avoidance, seeking medical tests) which, in turn, maintain symptoms. Ostensibly in support, people with FMD tend to hold illness perceptions comprising a low level of personal control over symptoms, a poor understanding of their symptoms, and a tendency to reject psychological causation (Ludwig, Whitehead, Sharpe, Reuber, & Stone, 2015). However, perhaps limiting the explanatory and/or clinical value of this aspect of the model, one might contend to what extent people's beliefs are distorted; instead, they appear appropriate to reflect the context of living with FMD.

A recent predictive coding account of FMD (Edwards, Adams, Brown, Pareés, & Friston, 2012) details a process whereby FMD can result from disturbances in basic neurocognitive processes of which a person is unlikely to be aware: sensory feedback during movement and attention to movement. These processes can become represented in higher-level cognitive processing, such as illness beliefs, and vice-versa. This model is supported by empirical evidence of sensorimotor and attentional disturbances in FMD (Macerollo et al., 2015; van Poppel et al., 2011). The salient advance in this newer model is that it emphasises that treatments might be effective without necessarily having a mental health/psychoeducation focus. Thus, neuro-rehabilitation treatments such as physiotherapy might also be viable.

Treatment

A recent narrative review of FMD treatment studies concluded that several treatments showed promising application, but noted a dearth of high-quality evidence supporting any particular approach (Ricciardi & Edwards, 2014). A small trial of neuroleptics showed post-intervention symptom reduction, but with unwanted side effects (Rampello et al., 1996). An uncontrolled study of antidepressants returned broadly positive results (Voon & Lang, 2005). Mirroring the popularity of conversion theories, in the largest psychotherapy study, 15 people

with FMD were randomised to immediate or delayed psychodynamic treatment. This aimed to directly alter symptoms by “...making unconscious phenomena conscious and working through underlying conflicts.” (Kompoliti, Wilson, Stebbins, Bernard, & Hinson, 2014), p. 61). Although likely underpowered, no significant improvement in symptoms or mood could be attributed to the intervention. A traditional cognitive behavioural therapy (CBT) case study was also identified. In line with the cognitive behavioural model (Deary et al., 2007), this aimed to improve FMD symptoms directly by targeting “...automatic thoughts...and somatic misinterpretations...” (LaFrance & Friedman, 2009). Outcome measures are unclear, though the authors’ subjective report is that symptoms had desisted. Similarly, a case study of an integrative psychotherapy approach to functional neurological disorders, including FMD, observed a post-intervention improvement in symptoms, but without objective measurement (Baslet & Hill, 2011). In line with newer conceptualisations of FMD (Edwards et al., 2012), there is increasing interest in physiotherapy (Nielsen et al., 2014). A small RCT (N = 57) demonstrated post-intervention improvements in symptom severity and aspects of quality of life in the FMD sub-group without psychiatric co-morbidity (Nielsen et al., 2016).

Acceptance and Commitment Therapy (ACT)

For a number of theoretical and pragmatic reasons, we propose that a newer type of acceptance-based behaviour therapy, called Acceptance and Commitment Therapy (ACT), may have utility in FMD. ACT is an acceptance-based behaviour therapy that has a strong evidence base for improving outcomes in chronic pain (Hann & McCracken, 2014), and a growing evidence base for improving functioning with mental health conditions (A-Tjak et al., 2015) and chronic diseases (Graham, Gouick, Krahe, & Gillanders, 2016), including neurological conditions (Carrigan & Dysch, 2015; Graham, Gillanders, Stuart, & Gouick, 2015).

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Underlying theory and psychological flexibility

ACT has its roots in radical behaviourism, and is informed by Relational Frame Theory (RFT). RFT posits that a fundamental human behaviour is verbally 'relating': i.e. deriving relationships between such stimuli as words, objects and emotions, thereby creating complex symbolic networks. Relating behaviour is reinforced by its utility for rapid acquisition of information and in predicting outcomes; however, it also brings with it negative implications. For example, we will often engage in behaviours that are in line with prior learning (symbolic constructions), rather than engaging in behaviours more directly in line with the current situation or indeed with our own personal values (McCracken, 2011).

These theoretical underpinnings shape ACT in several ways. For example, they suggest that the elimination or control of thoughts and feelings may be an ineffective long-term treatment goal, because control and suppression behaviours may become pathologically related to the experience being controlled (for example a thought, emotion or bodily sensation; Hayes, 2004). Another implication is that making the uncovering of objective truths a treatment goal can become counter-productive, mirroring rumination and worry in function, and causing insensitivity to other important aspects of experience (Villatte, Hayes, & Villatte, 2015).

Therefore, instead of focusing treatment on reducing or controlling unwanted thoughts and feelings, or trying to align beliefs with essential truths, ACT aims to promote a general process called psychological flexibility, which can be defined as consisting of three components: "...the capacity to persist or to change behaviour in a way that 1) includes conscious and open contact with thoughts and feelings (openness), 2) appreciates what the *situation affords (awareness)*, and 3) *serves one's goals and values (engagement)*" (McCracken & Morley, 2014, p. 225.)

Therapy techniques

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ACT uses a range of methods to engender psychological flexibility. The therapist will explore the participant's overarching 'values', such as performing as a nurturing parent, or creativity in work. Participants are encouraged consciously to initiate actions that support their values, for example by spending time with children, disclosing emotions and opinions, etc. (Dahl, 2015). To assist this committed action, the therapist facilitates development of the openness and awareness aspects of psychological flexibility, often using variations of mindfulness practice and perspective-taking.

As the medium for many ACT treatment techniques is language, therapists might therefore be creative in using relational framing (i.e. purposefully creating new relationships between words, and other stimuli) within the clinical conversation to help create the conditions in which new psychologically flexible behaviours might occur (Villatte et al., 2015; see Table 1). Perhaps the most obvious example of using framing within therapist-client interactions is metaphor, for example: "Thoughts and feelings are like the weather". Here, co-ordination framing (see Table 1) is used to associate thoughts and emotions with weather experiences (e.g. transience, familiarity and inevitability). Consequently, participants might begin to notice that they can watch thoughts and feelings from a distance, like they do the weather, or that emotions can change independently of our own efforts, like the weather. Thus, framing can be used to create the conditions for different responses to emotions, thoughts and bodily sensations.

Proposing ACT for improving outcomes in FMD

Many have argued that ACT offers pragmatic benefits in working with people living in unclear, difficult or immutable contexts such as chronic pain and chronic disease (Graham et al., 2016; McCracken & Vowles, 2014). It may therefore offer several benefits in the context of FMD.

i. Fully applicable across FMD presentations and treatment contexts

The focus of ACT enables this model to function well within the uncertain context created by FMD and across a heterogeneous patient group. Rather than seeking directly to control or eliminate FMD symptoms, related cognitions or emotions, the primary ACT treatment goal is to help orient the person towards activity they find meaningful, given the difficulties caused by FMD (or indeed other sources of psychological pain). Consequently, FMD can be as a participant experiences/perceives them, and this need not change for therapy to be effective. For example, where a person with FMD experiences disabling symptoms, with no control over symptoms, then negative automatic thoughts, illness beliefs, and unwanted emotions might simply reflect this context. As we have advanced for chronic diseases, ACT's focus on finding ways to enact personally meaningful activity, while developing openness to difficult thoughts and feelings, might offer more scope for change than attempts directly to change beliefs about illness, the self or the future, or to control distress (Graham et al., 2016). Similarly, if a person brings a workable conceptualisation that FMD is affected by a mental health problem or is an emotional response, ACT is also applicable, showing promise for improving outcomes in mental health conditions (A-Tjak et al., 2015). As is effectively done in chronic pain contexts, an ACT perspective might also be used to enhance physiotherapy and multi-disciplinary treatments for FMD (Jacobs, Guildford, Travers, Davies, & McCracken, 2016; Vowles & McCracken, 2008).

ii. A different approach to symptom-focused attention

FMD can involve aberrant symptom-focused attention (Edwards et al., 2012; Macerollo et al., 2015), with diagnosis informed by the distractibility of symptoms (Stone, 2009). Thus, treatments which alter symptom-focused attention might have value. However, attempts to do this may be counter-productive if change in attentional processes (or indeed symptom

control) is an explicit treatment goal. The salience of symptoms and associated experiences may paradoxically increase via vigilance (i.e. to initiate or maintain distraction) and outcome monitoring (i.e. evaluating the success or failure of control attempts). Such a focus also risks increased FMD symptom interference, because control of symptom experiences may come at the cost of personally meaningful activity. In contrast, for the purpose of increasing such activity – and not controlling symptom experiences – ACT incorporates aspects of mindfulness: learning to allow present experiences, even those which are undesired, to occur without elaboration (Lindsay & Creswell, 2017). This may change the quality of self-focused attention from threat monitoring to acceptance and thus reduce symptom interference (Wilson, Barnes-Holmes, & Barnes-Holmes, 2014).

2 Case Introduction

Claire (not her real name) was in her early twenties. Twelve months prior to her referral she had received a diagnosis of functional propriospinal myoclonus, an FMD which involves recurrent pelvic spasms (van der Salm et al., 2014). Following a later acute hospital presentation for functional limb weakness, she was referred by her neurologist to a clinical neuropsychology outpatient service for treatment of FMD, and was treated by a clinical psychologist.

3 Presenting complaints

Claire reported that her myoclonic jerks occurred consistently throughout the day. She stated that these were interfering with her functioning and causing her distress; however, she was able to maintain employment. She also reported significant low mood, which affected her well-being via rumination and sleep dysfunction (short and disturbed sleep). Although she noted that her mood was affected by FMD, she was uncertain whether her mood was a causal

or maintaining factor for her symptoms. Her initial treatment goals were to gain control over her spasms, and to improve her mood.

4 History

Claire had a normal neurodevelopmental history, and had performed well at school. She had a history of low mood, beginning several years prior to the onset of FMD. She was prescribed antidepressant medication for low mood, and had been taking this medication prior to the onset of FMD.

Aside from this, she was in good health. She had recently returned to her country of birth after several years living abroad. She described her time abroad as particularly stressful, involving several difficult relationships, and a limited support system. Her spasms became apparent while abroad, and resulted in a referral to neurology, where she received a diagnosis of FMD. Upon relocation, her FMD continued and her sleep and mood became more problematic. Nonetheless, she was able to find employment, and maintain a social life, albeit slightly limited.

Nine months following her diagnosis, she experienced an acute worsening of her spasms alongside functional limb weakness. She was unable to identify a specific precipitant to this acute worsening in her symptoms. This led to an emergency presentation to a neurology clinic. Consequently, she was briefly hospitalised and treated with benzodiazepines. These dampened symptoms slightly but caused side-effects and so were abandoned. At this point, she was referred to clinical neuropsychology.

5 Assessment

Assessment included a clinical interview alongside validated questionnaire measures of outcome and process variables. To our knowledge, there are no measures which have been psychometrically validated for use in FMD. We thus chose widely used, clinically relevant

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measures. This was a pragmatic case study, undertaken within routine UK National Health Service clinical work. Therefore, the assessment of changes in outcome measures over the period of the intervention was undertaken within a simple pre- and post-intervention design.

Clinical interview

This involved a standard clinical interview, comprising discussion of family background, co-morbid health conditions, development, social and occupational functioning, mood, etc.

Claire's understanding of FMD was elicited, and then, in more detail, the consequences of FMD, particularly functioning and emotional repercussions. Questionnaires were used both to support such enquiry, and as outcome measures (below). Based on the information given by her neurologists, Claire's understanding was that her condition was the result of problems with brain signals reaching parts of her body. Although it had been previously suggested to her that stress might be a cause (by a neurologist), she was uncertain about this. In line with ACT, psychological flexibility was assessed via interview, and with a questionnaire (below).

Acceptance and Action Questionnaire II (AAQ-II)

The AAQ-II (Bond et al., 2011) is a widely used measure of psychological flexibility. An example item is 'Worries get in the way of my success'. The rating scale ranges from 1 (never true) to 7 (always true) and total scores range from 7 to 49, with higher scores indicating lower psychological flexibility. Claire's pre-treatment AAQ-II scores indicated quite low psychological flexibility (31/49), similar to a sample seeking outpatient counselling ($M = 28.34$, $SD = 9.92$; Bond et al., 2011).

Work and Social Adjustment Scale (WSAS)

The WSAS (Mundt, Marks, Shear, & Greist, 2002) is brief measure of symptom interference with functioning ascribed to a specific condition (here FMD). An example item is 'Because

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of my FMD my social leisure activities (e.g. parties, bars, outings, visits, dating etc.) are impaired'. Responses are made on a scale from 0 (not at all impaired) to 8 (severely impaired) and scores range from 0 to 40, with higher scores indicating greater symptom interference. Claire demonstrated a seemingly moderate impact of FMD on functioning (16/40), at the lower end of a range of scores obtained from a sample of people with FMD entered into a previous RCT of physiotherapy ($M = 24.7$, $SD = 7.9$; Nielsen et al., 2016). The WSAS was used as our primary outcome measure because it captures interference with personally meaningful behaviours. Therefore, arguably, the WSAS is a more ACT-consistent primary outcome measure than a general quality of life scale.

CORE-10

The CORE-10 is a brief measure of mood and distress (Barkham et al., 2013), which is often used in primary care and clinical health psychology settings in the UK. Scores range from 0 to 40, with higher scores indicating greater mood disturbance. It has clinical cut-offs of <11 for general psychological distress and <13 for depression. At presentation, Claire's mood was above both cut-offs (21/40), indicating psychological distress to the extent which indicated the likely presence of depression.

6 Case conceptualisation

The clinical interview supported the low psychological flexibility scores on the AAQ-II. Thus, we undertook a person-centred formulation of how lower psychological flexibility might increase the impact of FMD-related symptom experiences, resultant emotions and other sources of psychological distress on personally meaningful functioning.

Engagement

Claire was unclear about her values, which are defined in ACT as freely chosen qualities of ongoing action or direction that serve as intrinsically reinforcing means to co-ordinate future

behaviour (Dahl, 2015). This lack of values clarity appeared to impact on her behaviour in several ways. First, because her choices (for example, where to live, career, etc.), were not consciously anchored in her values, they had a quality of spontaneity and were often influenced by the presence of strong emotions. For example, she had decided to move to another country, but had not consciously considered her goals beyond relocating. A lack of connection between her choices and her values may also have contributed to a reduced momentum in her behaviours, because she was missing the intrinsic positive reinforcement which can occur when we meet our goals (Dahl, 2015). Nonetheless, at presentation she was active in employment and was able to keep her commitments. Thus, once selected, there was consistency in her behaviours, and she was quite active given the presence of FMD. We therefore hypothesised that she was able and willing to make changes to support her values, but wasn't sure which to enact.

Openness and awareness

We then considered the openness and awareness aspects of psychological flexibility. At presentation, Claire was using several apparently ineffective methods to manage emotions and thoughts related to her stressful time abroad and to FMD. Distraction was being used during the day in an attempt to avoid or diminish unwanted thoughts and emotions; at night, it seemed that rumination served the function of trying to uncover essential truths about her time abroad, with the goal of being relieved of associated discomfort and uncertainty. Both strategies seemed to serve the function of experiential avoidance: behavioural attempts to avoid unwanted private events. However, such attempts can paradoxically increase the interference of emotions and thoughts (Hayes, 2004). There is evidence of an ironic increase in the frequency and intensity of suppressed thoughts longer-term (Clark, Ball, & Pape, 1991), while relational framing can extend this beyond the initial stimuli being suppressed (Hooper, Saunders, & McHugh, 2010). Perhaps via such a mechanism, Claire's sleep was becoming

increasingly affected, and she reported feeling increasingly upset, guilty and ashamed that neither mood nor FMD were improving, despite her best efforts. The consistent use of ineffective emotion-regulation methods also suggested difficulties tracking the antecedents and consequences of some of her behaviours. We thus hypothesised that, alongside experiential avoidance, symptom interference was being aggravated by an insensitivity to context (i.e. a difficulty noticing the consequences and antecedents to some of her behaviours), and by a limited behaviour repertoire in the presence of aversive stimuli.

In summary, at presentation Claire was managing to function to a reasonable extent given the presence of FMD. However, interactions between the use of logical yet ineffective strategies, combined with unclear longer-term goals and values, appeared to be increasing FMD symptom interference (particularly via poor sleep and increased emotional impact) and affecting mood.

7 Course of Treatment and Assessment of Progress

Content of the intervention

FMD was first explained as being the result of changes in brain functioning, with a proportion of people recovering entirely over time. Claire was receptive of this explanation. Treatment was introduced as a means to increase personally meaningful activity, with FMD. This partially served the purpose of having attention on meaningful activity as opposed to symptom control. In line with her initial treatment goals, changes in symptoms and mood were acknowledged as events that could possibly occur during the course of treatment.

Several methods were used to increase psychological flexibility, in order to enable Claire to function as well as possible with FMD. In treatment we moved flexibly around the

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components detailed below, and Table 1 further explicates the relational framing techniques and metaphors that were used.

Engagement

To increase engagement, the therapist led discussion of her values. This involved the use of various framing methods, for example: “When you feel most alive, what are you doing, or not doing?” This is an example of comparative framing (as in Table 1). Claire described values involving experiencing nature, connecting with family, and spirituality. She later generated and experimented with new behaviours that might enable progress on her values (e.g. mindfulness practice, trips to local parks). She also maintained some existing behaviours such as going running, now more conscious of their role in helping her make progress towards her values.

Openness and awareness

To improve her ability to notice the antecedents, consequences and effectiveness of her behaviours (context sensitivity), Claire’s attention was directed to their outcomes and functions, often framed in relation to values: “Did this/might this take you in the direction you want to go in?” This mostly applied to the strategies enacted in response to aversive emotions (e.g. rumination and distraction), but was also encouraged to track the progress of newly acquired behaviours. To support this, mindfulness practice was introduced as a way to enhance further the intrinsic positive reinforcement of some behaviours consistent with her values (e.g. running, exploring nature).

To reduce the influence of unwanted emotions over personally meaningful activity, several methods were used to foster experiential acceptance. This began with Claire describing thoughts and feelings related to her stressful time abroad. The therapist purposefully encouraged her to slow down and attend more deliberately to these experiences (the thoughts,

emotions and bodily sensations present). Through this process Claire noticed that she could be in the presence of difficult thoughts and feelings, without necessarily needing to enact behaviours to diminish these experiences.

From here, metaphor – mostly an adapted and extended version of the bus metaphor (Hayes, Strosahl, & Wilson, 1999) – was used to change her relationship with (transform the stimulus functions of) clinically relevant emotions, thoughts and feelings, and to reduce their impact over goal-directed behaviours. The aim here was to help Claire to notice that she could choose to open up to difficult thoughts and feelings, and still act effectively – i.e.

commensurate with her values – in their presence. First, within this bus metaphor, unwanted thoughts and feelings were personified as passengers on a bus, which Claire was attempting to drive in the direction of her values. Situated against her real experiences (relationships, symptoms, etc.), Claire noticed that when she drove in the direction of her values – i.e.

attempted to undertake behaviours consistent with her values – her passengers (unpleasant memories, self-evaluative thoughts, anxiety) would often interrupt her, and she would then take a detour (stop doing what was important to her, losing track of her values). Framing (hierarchical and co-ordination) enabled an association between aversive emotions, thoughts and bodily sensations – passengers – and her direction of travel, her values. Through such metaphor, aversive experiences could be reframed as part of positive behaviours, thereby adding appetitive aspects to stimuli that were previously experienced as aversive. This also appeared to increase Claire's willingness to be with painful stimuli when doing so served her values. She also noticed that she could hold, and travel with, unwanted thoughts and feelings; that they were a part of her experience but not all of her experience (hierarchical framing).

The use of this and other metaphors (Table 1) also served the purpose of helping Claire to experience her verbal thought content from a different, less literal perspective (Foody et al., 2014).

Finally, in working with guilt and shame, and to encourage a more flexible experience of the self, we used temporal and deictic framing, for example: “If an older you – you in your seventies – walked into this room, what would she see? What would she say about your situation?” This appeared to allow Claire to notice her present thoughts and feelings from a broader perspective, including their relationship to situations that had given rise to them. The result appeared to be improved sensitivity to context which led to increased self-compassion. In other words, from another perspective – an older, wiser her – she could see her present self and struggles as influenced by the difficult context in which she found herself (i.e. living with FMD, following her difficult time abroad). Thus, following a shift in perspective, unnoticed aspects of context became apparent as influences on her thoughts, feelings and behaviour.

Where appropriate, the therapist used honest, albeit limited, self-disclosure where it might enhance psychological flexibility and reinforce the therapeutic relationship. Frames of co-ordination (e.g. “all of us”; “I also”) between therapist and participant were used to derive functions of commonality and normality. Arguably, all of us try to get rid of difficult thoughts and feelings, can struggle in the face of their difficult contexts, and have learning histories often at odds with our current situations.

Results and Progress

Over the course of the intervention, Claire was increasingly able to identify values and to enact a range of behaviours supporting these – with FMD present. She began to approach unwanted thoughts and feelings differently: she showed greater willingness to experience them, could view them outside of pre-intervention language systems (i.e. as metaphors), and was less inclined to distract herself when such phenomena were present. Thus, time spent struggling with unwanted thoughts and feelings reduced, and time spent engaged in personally meaningful activity increased.

To quantify the extent of changes in outcome measures (WSAS, CORE-10, AAQ-II) we calculated the Reliable Change Index (RCI) and Clinically Significant Change (CSC) (Table 2). These analyses use normative and psychometric data to calculate a) whether or not change is likely to be explained by measurement error (reliable change), and b) whether change is to the extent that it indicates clinical recovery (clinically significant change) (Jacobson & Truax, 1991; Morley & Dowzer, 2014). For Claire, a large change in all outcomes was apparent, to the extent that it indicated reliable change and clinical recovery in symptom interference, mood and psychological flexibility (Table 2). In addition to these improvements in targeted processes, Claire volunteered that her ‘spasms’ (i.e. functional propriospinal myoclonus) had almost entirely stopped by the end of treatment.

8 Complicating Factors

Although Claire had a fast and positive response to treatment, this was a very brief intervention – just six sessions, inclusive of assessment. Given that many of her less psychologically flexible behaviours had been established over many years, Claire may have benefited from follow-up sessions to help reinforce her new behaviours. She also experienced a difficult interpersonal problem halfway through treatment, between sessions 3 and 4. In session 4, Claire verbally reported an acute subjective worsening of mood. This impacted on her sleep, and her level of physical activity reduced for several days. However, this was viewed not as a setback but as another opportunity to contextualise difficult thoughts and feelings, to increase context sensitivity, and to practise psychologically flexible behaviours in a new difficult context.

9 Access and Barriers to Care

There were no financial or access barriers to care. Treatment was provided by the National Health Service (United Kingdom), which offers publicly funded medical care. However, due

to a number of factors (e.g. service parameters, relocation) a brief intervention was agreed at the beginning of treatment.

10 Follow-up

Due to relocation, we were unable to complete a follow-up assessment with validated questionnaires. However, in an ad-hoc e-mail received four to six weeks after the end of treatment, Claire reported that symptom interference related to FMD remained minimal. Nevertheless, she also stated that she had noticed some instances of acute anxiety. Our tentative explanation is that this may have been a response to a change in context (i.e. relocation). Thus, a limitation of the case study is that we were unable to confirm the maintenance of improvements in outcome and process variables.

11 Treatment Implications of the Case

We advanced that ACT may be applicable to improving outcomes in FMD, mostly for similar reasons as have been advanced in chronic pain (McCracken & Morley, 2014) and chronic diseases (Graham et al., 2016): these being pragmatic benefits in difficult, uncertain or immutable contexts. Although stronger inferences to the intervention could have been made if we had used a multiple baseline design, this case demonstrated the successful application of a brief ACT intervention for improving functioning with FMD. Post-intervention measurement, alongside participant behaviour, showed reduced symptom interference with personally meaningful activity, and improved mood. These improvements in outcomes may have been mediated by an improvement in psychological flexibility.

Although this was not the primary treatment focus, a post-intervention improvement in FMD symptoms was also described. This may have come about via more frequent meaningful activity leading to improved physical condition or confidence. Improvement might also be explained via newer models of FMD that implicate the impacts of aberrant symptom-focused

attention (Edwards et al., 2012): in short, that a change in the quality of attentional focus on movement ameliorated symptoms (possibly even via a placebo effect). Similar symptomatic improvement was seen in an earlier case study using a broadly similar approach with a person experiencing non-cardiac chest pain following stroke (Graham et al., 2015). However, it is also possible that symptom improvement was completely extraneous to the intervention (e.g. spontaneous change in an unknown neurological process).

The case study illustrates some key benefits to adopting ACT in the context of FMD. Here, FMD was first approached as we would approach a chronic disease: altering behaviour to live as best one can within a challenging context (Graham et al., 2016). Although this case could have attracted a psychogenic or conversion explanation, since symptoms first became apparent during times of stress, no such assumption was required for the intervention to be effective. Further, we were not required to suggest that unrealistic illness beliefs or resulting illness behaviours were implicated in the symptoms; thus we did not attempt to change what the person believed about their condition. Indeed, because the focus was not on controlling or removing it, the FMD was rarely discussed after the assessment, apart from as a context for difficult thoughts and feelings, and to disentangle direct limitations of functioning.

12 Recommendations to Clinicians and Students

The unique features of ACT may render it particularly useful in the context of FMD. Nonetheless, we suggest that many ACT methods – particularly relational framing – either overlap with, or can be incorporated into, other treatment frameworks, e.g. traditional CBT, systemic therapy, psychodynamic therapy or person-centred counselling (Villatte et al., 2015). For example, in many cases the approach might benefit from shifting focus to increasing personally meaningful functioning, as opposed to seeking directly to reduce FMD symptom experiences.

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We would caution that advancing the engagement aspects of psychological flexibility – i.e. values and committed action – does not involve relentless pushing from therapists. Rather, we suggest that actions should be freely chosen to connect with personal values. The effectiveness and utility of new behaviours can be placed within the person's own experience, including the limitations imposed by symptoms. For example, increased awareness may help people to notice that relentless pursuit of some behaviours leads to boom–bust patterns of fatigue and pain, at which point therapy might focus on helping the person to ascertain whether altering or persisting with new behaviours is most workable.

Also, we expect that if a person is engaging in new behaviours solely or mostly to please the therapist, other people or society at large, this might result in short-term benefits at best, since any new behaviours will not be sufficiently intrinsically reinforcing. It is important to note that an ACT conceptualisation of personally meaningful activity does not necessarily comprise increasing physical activity or exertion, as might be a focus in Graded Exercise Therapy. Instead, it is about creating a context in which a person can consciously choose to enact behaviours supporting their values. Behavioural changes may appear subtle, for example calling family members more often, or being more open about difficulties caused by FMD. Changes might also comprise nuanced shifts in the quality of already enacted behaviours, for example mindfully savouring the processes of work, parenting, socialising or romance, as opposed to focusing on outcomes (promotions, children's exam results, marriage, etc.).

Finally, we are making the testable assumption that, as in other difficult contexts such as chronic diseases and chronic pain, having lower psychological flexibility makes it harder to live with the challenges imposed by the condition. However, we are categorically not making the assumption that low psychological flexibility causes FMD. Thus, the presence of FMD does not imply that someone has poor psychological flexibility. The clinical implication is

that while many people with FMD may benefit from ACT, some will not require or benefit from it. ACT is most likely useful if psychological flexibility is assessed as problematic, and if people are keen to increase their functioning as a standalone intervention or as part of a multidisciplinary intervention. Although this hypothesis needs to be tested in comprehensive trials with larger sample sizes, or by using more detailed N-of-1 analysis, we advance that ACT represents a promising psychological intervention for improving outcomes in FMD.

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Table 1

Some examples of the relational framing techniques that were used with Claire to facilitate psychological flexibility (informed by Villatte et al., 2015)

Therapist language behaviour ('framing')	Clinical example	Purpose of the example
<p>Co-ordination framing</p> <p>Relations of equivalence or similarity between stimuli.</p>	<p>“It sounds like you are saying that your thoughts about yourself can change quite often ... almost a) like the weather?”</p> <p>“... these recurrent stories about being a failure: it sounds like they have been with you for a while, almost b) like living with an annoying flatmate?”</p>	<p>To transform the symbolic functions of thoughts to include a) transience, b) familiarity.</p> <p>Psychological flexibility (PF) goal: To begin to a) draw attention to the distinction between thoughts and the person doing the thinking; b) foster a willingness to open up to unwanted thoughts.</p>
<p>Hierarchical framing</p> <p>Relations of inclusion or category.</p>	<p>“Which things could you do as a part of becoming more present in your life?”</p>	<p>To frame behaviours within participant’s values.</p> <p>PF goal: Increasing the chance of behaviours being enacted that are consistent with values.</p>
<p>Deictic framing</p> <p>Relations of perspective – person, place or time.</p>	<p>“What would you want your life to look like five years from now, a) with FMD?”</p> <p>“... b) “If an older you – you in your seventies – walked into this room, what would she see?”</p>	<p>To alter the context of present thoughts and feelings, via perspective change, to allow new symbolic functions: a) living with FMD, b) self-compassion.</p> <p>PF goal: to create a context for increased a) engagement; and b) openness to difficult thoughts and feelings related to the self.</p>
<p>Comparative framing</p> <p>Relations of comparison.</p>	<p>“When you do that, does it take you towards or away from your values?”</p>	<p>To discriminate to the consequences of behaviours.</p> <p>PF goal: To foster engagement by noticing where behaviours are/aren’t consistent with values.</p>
<p>Conditional framing</p> <p>Relations of consequence or dependence.</p>	<p>“If I had been though the experiences that you describe on my way to diagnosis, then I imagine that I might also have those thoughts and feelings – especially when referred to a psychologist.”</p>	<p>To increase context sensitivity by drawing attention to the impact of present context on thoughts and feelings.</p> <p>PF goal: Alongside simple normalising/relationship building, to increase awareness of emergent thoughts and feelings, and their relation to context.</p>

Table 2

Changes in primary (WSAS) and secondary (CORE-10) outcomes and the process variable (AAQ-II) across the period of the intervention.

	Pre	Post	Change	RCI*	CSC*	Interpretation ^d
WSAS ^a	16/40	0/40	19	6.07	N/A ^a	Clinical Recovery
CORE-10 ^b	21/40	2/40	19	5.91	10.84	Clinical Recovery
AAQ-II ^c	31/49*	12/49	19	6.22	22.76	Clinical Recovery

*As recommended by Connell & Barkham (2007), based on Wise (2004), 1.28 SDs were used in calculations as opposed to 1.96 SDs.

^a WSAS requires the presence of a condition, thus normative data not applicable.

^b alpha, clinical and non-clinical norms from (Barkham et al., 2013).

^c alpha, clinical and non-clinical norms from (Bond et al., 2011).

^d Based on the guidance of Morley & Dowzer (2014), with criterion b used for WSAS, CORE-10; criterion c for AAQ-II.